

# American Vegetable Grower

MARCH • 1957



Trellis Tomatoes • Varieties • Early Maturity • Harvesting

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*Get better stands, yields, quality and profits with  
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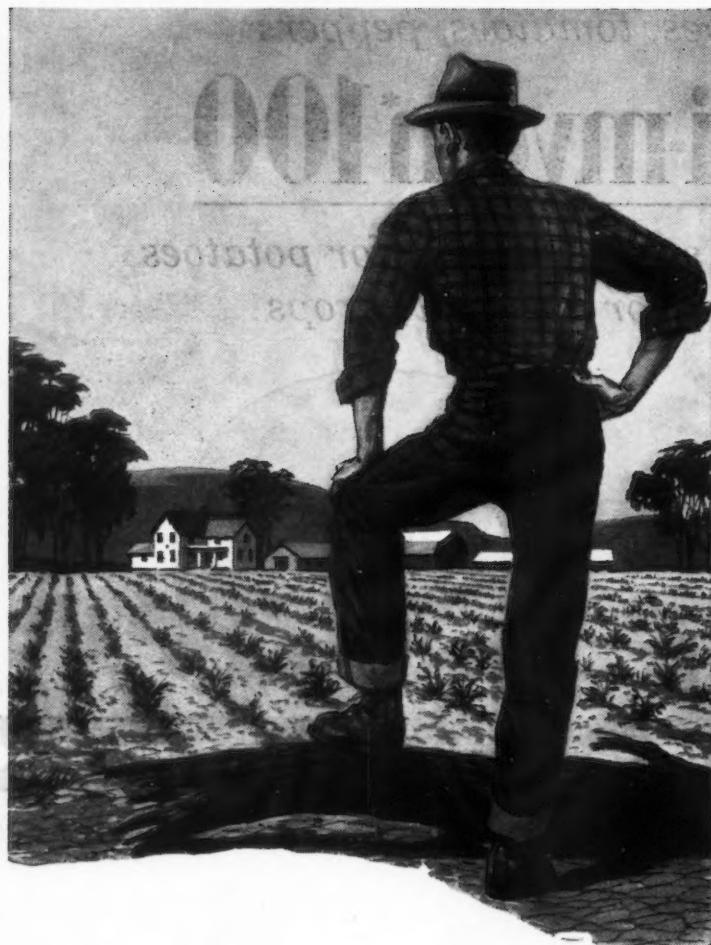
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City \_\_\_\_\_ State \_\_\_\_\_

Vegetable crop \_\_\_\_\_ No. of acres raised \_\_\_\_\_



## AMERICAN VEGETABLE GROWER

REG. U. S. PAT. OFF.  
(Commercial Vegetable Grower)  
Vol. 5 March, 1957 No. 3

### FEATURED IN THIS ISSUE

Cover photograph shows staked tomatoes on the farm of Louis F. Rauth, Delray Beach, Fla. Formerly an Indiana tomato grower, Rauth now specializes in vine-ripened tomatoes.

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### AMERICAN VEGETABLE GROWER

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# POWER

Grower No. 3

ISSUE  
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Gray Beach, Fla.  
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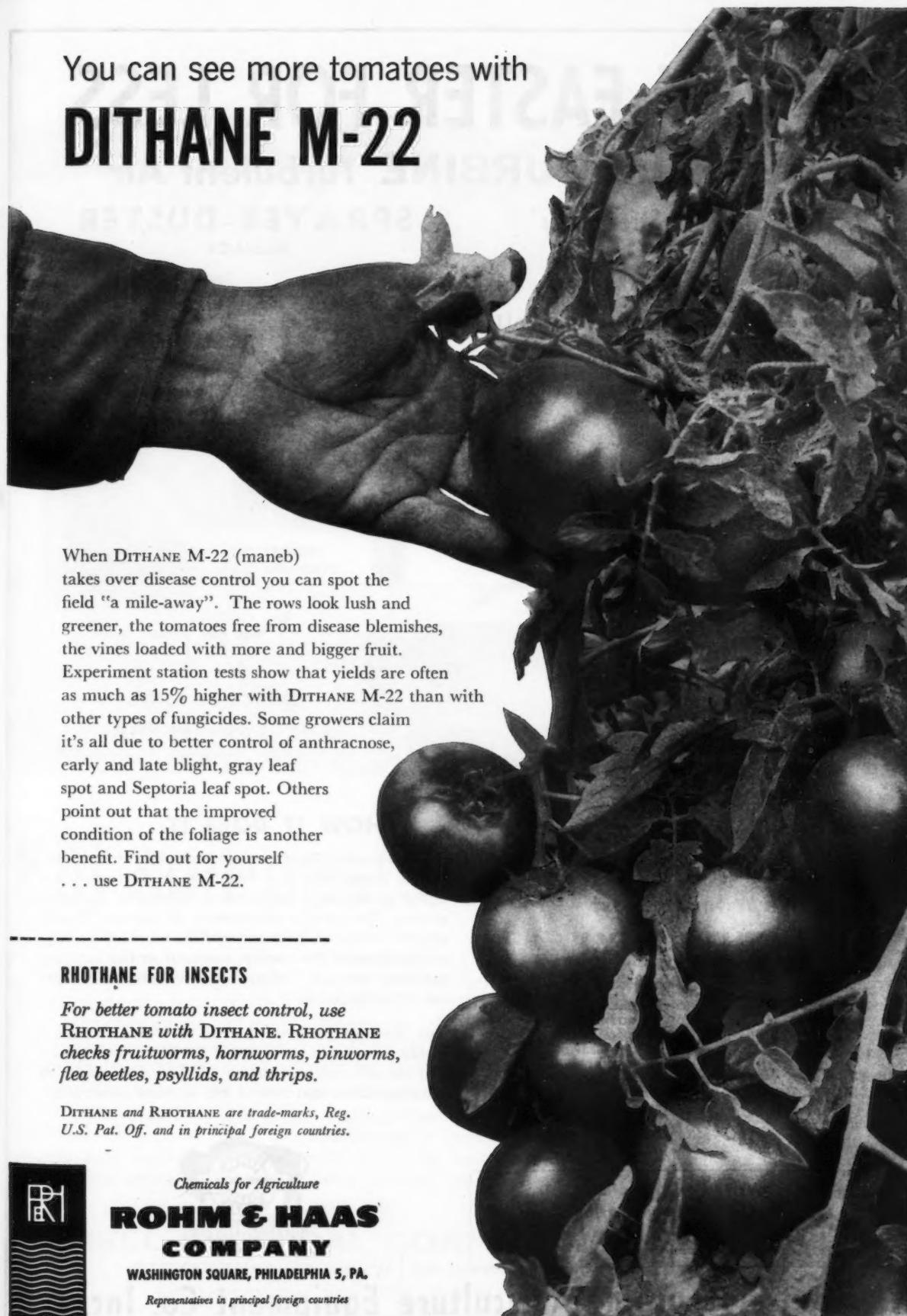
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MARCH, 1957

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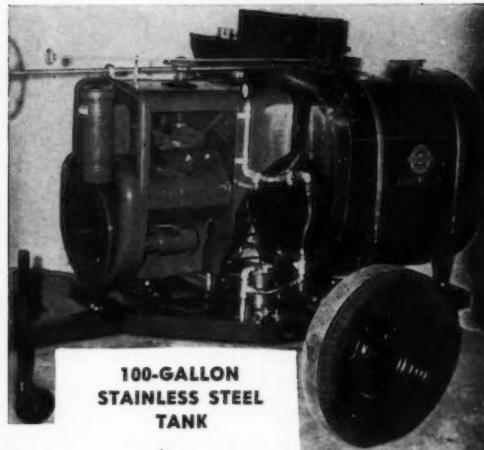
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## Kill soil pests with aldrin

CONTROL HARMFUL soil pests and you take a major step towards bigger and better yields. These destructive insects ruin millions of dollars' worth of vegetables and small fruits each season. That's why more and more growers are knocking out soil pests with powerful aldrin.

Aldrin kills wireworms, root-worms, white grubs, and many

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granules, or a dust . . . or include it in a fertilizer mix. Whichever way you choose, you get dependable control.

This season, give your crops a good healthy start towards a profitable harvest. Knock out soil pests with powerful aldrin. It is available under well-known brand names from your insecticide dealer. See him today.

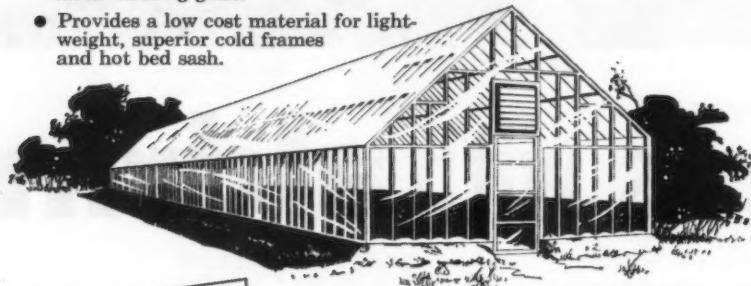
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### CALENDAR OF COMING MEETINGS AND EXHIBITS

Feb. 28-Mar. 1 — Watermelon Growers and Distributors Association, Hillsboro Hotel, Tampa, Fla.—J. J. Parrish, Sec'y, Adel, Ga.

Mar. 17-19—Kern County Potato Growers Association, Bakersfield Inn, Bakersfield, Calif. Association headquarters: P. O. Box 83, Bakersfield.

April 1-4—Maine Farm and Home Week 50th anniversary, University of Maine, Orono.—Rodger L. Reynolds, Extension Service, U. of Maine, Orono.

July 25-Aug. 2—National Vegetable Week, sponsored by Vegetable Growers Association of America. Joseph S. Shelly, Sec'y, 528 Mills Bldg., Washington 6, D. C.

Aug. 13-14—Ohio Pesticide Institute, Ohio Agricultural Experiment Station, Wooster.

Sept. 15-18—Produce Packaging Association 7th annual conference and exposition, Shoreham Hotel, Washington, D. C.

Oct. 9-11—Florida Fruit & Vegetable Association 14th annual convention, Hotel Fontainebleau, Miami Beach.—Florida Fruit & Vegetable Assoc., 4401 E. Colonial Drive, Orlando.

Nov. 14-15—Western Growers Association 32nd annual convention, Hotel del Coronado, Coronado, Calif. Headquarters: 606 So. Hill St., Los Angeles 14, Calif.

Dec. 9-12—Vegetable Growers Association of America 49th annual convention, Jung Hotel, New Orleans, La.—Joseph S. Shelly, Sec'y, 528 Mills Bldg., Washington 6, D. C.

### BOOK REVIEW

**Handbook for Vegetable Growers** by James Edward Knott, professor of vegetable crops, University of California. \$3.95. John Wiley & Sons, Inc., publishers.

Dr. Knott, author of the volume, *Vegetable Growing*, has arranged in concise form—in fact, in tabular form wherever feasible—much of the widely scattered information on vegetable growing. Source of material is included so that anyone interested may obtain further information.

Here in a moment you have, for example, the approximate quantities of seed needed in plant growing; the kind and quantity of fertilizer to use; a list of starter solution materials and quantity to use; information on calibration of fertilizer drills and calibration of sprayer operation; rates of water application for various irrigation methods; depth of rooting vegetables; approximate number of days from planting to market maturity; temperature requirements for holding vegetables in storage or transit; yields of vegetable seed per acre.

The contents of this handy spiral-bound handbook (it measures 5 1/4 x 7 1/4 inches) is divided into several parts, including Plant Growing and Planting, Soils and Fertilizers, Water, Pest Control, Harvesting and Storage, and Seed Production. An extensive index is included.

The Handbook is a "must" for every vegetable grower.

*Books on vegetable growing and allied subjects may be obtained from Book Department, AMERICAN VEGETABLE GROWER, Willoughby, Ohio. Include money order or check with order.*

**AMERICAN VEGETABLE GROWER**

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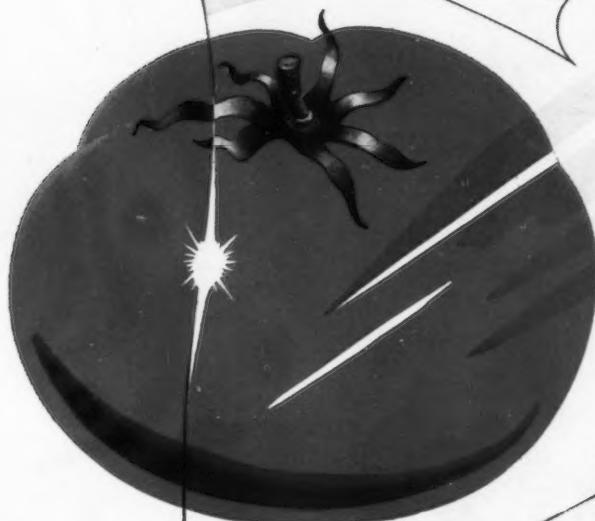
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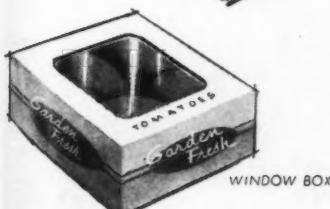
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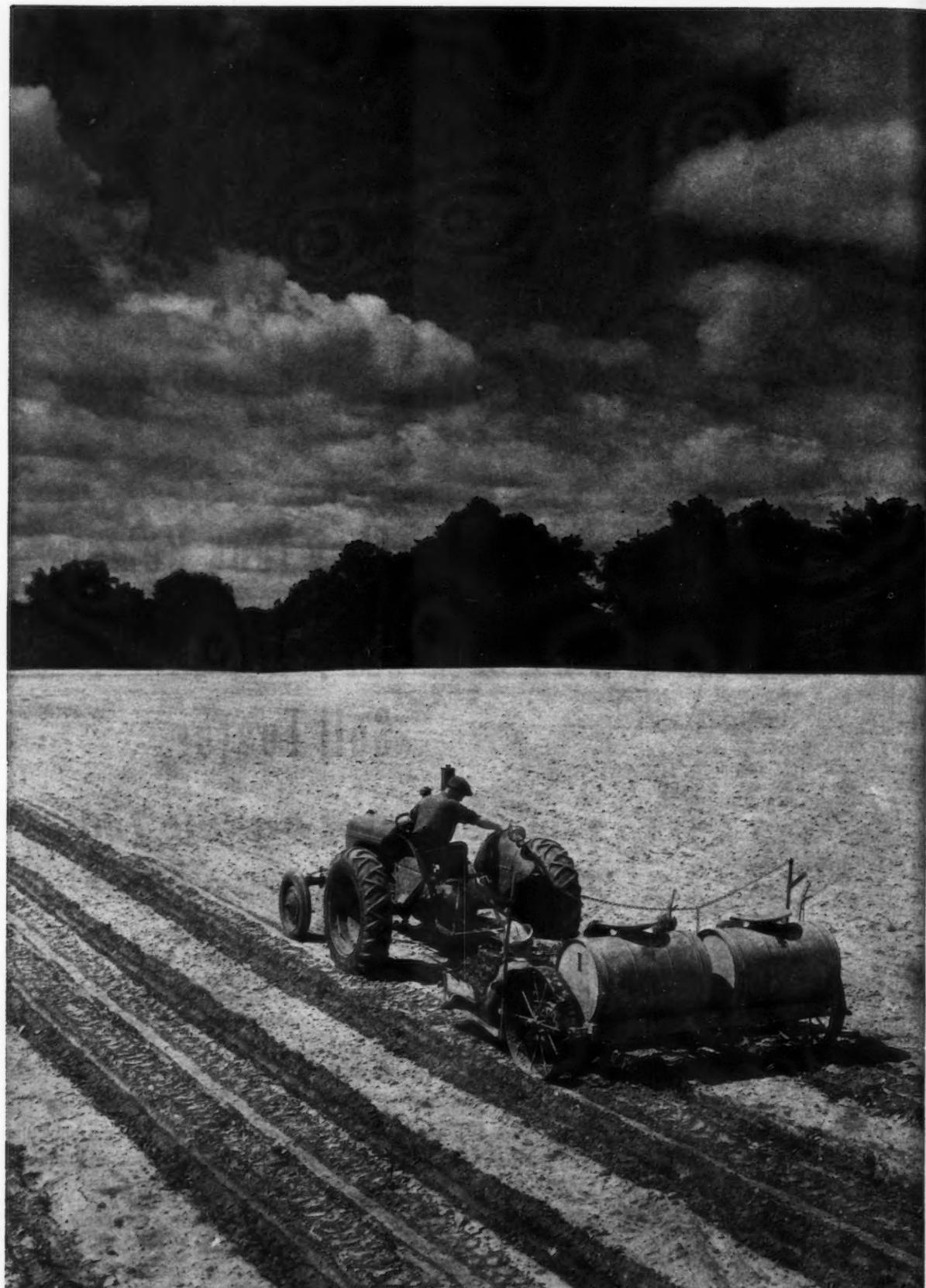
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**SETTING TOMATO PLANTS—A TYPICAL SCENE IN MIDWEST TOMATO AREAS IN THE SPRING.** Tomato production in the U.S. is big business. Shipments to fresh market alone totaled 40 million bushels in 1956.



# Trellis Tomatoes

New England growers produce 40 to 50 tons of tomatoes per acre

By ROBERT E. YOUNG

*University of Massachusetts*

A LARGE percentage of the tomatoes grown for market in Massachusetts and New England are grown on trellis.

While the cost of production under this method of culture is high, there are several important advantages. The most important is the production of high yields of high-quality, firm tomatoes. It is not unusual for growers to produce yields of 40 to 50 tons per acre. Disease and insect control are much easier because the plant can be thoroughly covered.

There are many varieties of tomatoes grown on trellis, but the most important in this area are so-called comet types. Most of these are English-type tomatoes, being medium in size but very firm. The most important commercial variety is Trellis 22. Many growers have their own strains, some of which are late and crack-resistant, others early.

All of these varieties have several characteristics in common. They have a uniform pink-red color when half-ripe and ripen to a dark scarlet. But probably the most important factor is the firmness which allows the fruit to be handled after ripening and to remain firm after the housewife has had it a week. The fruit is flat in shape and unusually smooth.

The most important difficulty is small size and cracking, so to be successful with trellis tomatoes requires the best of soil, fertilizer, and grower's skill. The high yields obtained make for profitable operation under normal market conditions.

Trellis tomatoes should be grown only on the best soil—one with ample fertility, organic matter, and moisture-holding capacity. This crop is one that definitely responds to application of manure. To produce a crop of 40 tons of tomatoes the soil must

supply up to 240 pounds of nitrogen, 85 pounds of  $P_2O_5$ , and 500 pounds of potash. This is about the equivalent of  $2\frac{1}{2}$  tons of 5-10-10 fertilizer per acre.

The only economical way to fertilize trellis tomatoes is to start with a soil test. On soils of high fertility, not as much fertilizer needs to be applied before planting. On soils of average fertility, at least a half ton of 0-20-20 per acre should be plowed down or worked in very deep, followed by a broadcast application of a ton of 5-10-10 per acre.

After the plants start to grow, they are top-dressed with nitrogen, and on poorer soils at least one of these top-dressings should be a complete fertilizer. The amount of nitrogen necessary will depend to some extent on the rainfall.

Good, sturdy, well-grown plants are essential for a good early crop of trellis tomatoes, and most of our growers grow their own in greenhouses or hotbeds. Experiments and grower experience have shown that plants grown in pots, bands, and baskets will produce earlier and bet-

ter crops. Ample space in the flat or cold frame is necessary for the production of good plants, and a 5 x 5-inch space is not too much.

There are two common types of trellis in use in our area. The original type was a single-row trellis, spaced 4 feet apart with posts every 20 to 25 feet. The latest development is what is known as an "A" trellis, which is actually one row of posts spaced 8 feet apart with two rows of plants trained to the one wire on top of the posts. The rows are 1 foot from the trellis on each side.

With the "A" trellis and row spacing of 2 feet and 6 feet, large tractors may be used for cultivating, spraying, and harvesting. Where one row shades the other, there is less cracking, but this shading reduces the total yield. Early yields are about the same as with a single trellis. The reduction of labor, posts, and wire makes the "A" trellis more economical.

In trellis tomato production, most growers prefer to grow only one stem per plant, spaced 12 to 14 inches in

(Continued on page 55)



# TOMATO VARIETIES

## For Your Area

Many commercial varieties are adapted only to certain areas. Use this listing as a guide in making your selection

By F. C. GAYLORD

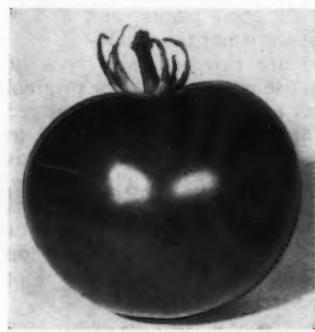
Purdue University

HUNDREDS of varieties of tomatoes are being commercially grown for greenhouses, fresh market and canning crops throughout the country. Since tomato varieties are usually limited in adaptation, varieties widely used in one area may be of little importance in another. The following are of commercial importance. Figures after variety names indicate approximate days to first general ripening.

### California and Far West

#### Improved Pearson (100)

Originated by O. H. Pearson at the Agricultural Experiment Station, University of California, by crossing a selection of San Jose canner and Fargo. This variety is responsible for the tremendous increase in tomato yields in California where it is by far the most important canning and shipping variety. Fruit is medium large, smooth semi-globe, of good red color, with somewhat large core, and tough, thick



Ferry-Morse

Two California varieties are EARLY-PAK (above) for fresh market and early processing, and SAN MARZANO (right) for solid pack and puree.



Asgrow

skin usually free from cracks or other defects. Vigorous self-topping plants with ample foliage and extremely heavy set, are mildly resistant to fusarium wilt, a little more tolerant to Verticillium wilt.

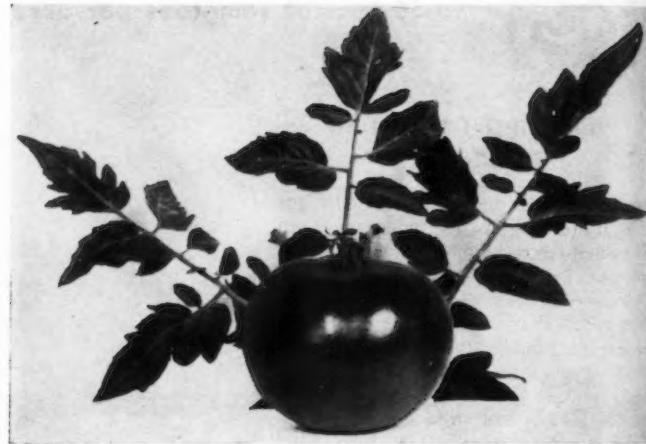
#### J. Moran (100)

A new red canning and shipping variety for California, outstanding for productivity and fruit quality. Similar to Improved Pearson in plant habits and fruit characteristics. Fruit is slightly larger than Pearson

with small core. Smooth, firm, and uniform, it holds its size late in the season. It is an outstanding variety for green shipping.

#### Earlypak (78)

A new variety especially for fresh market shipping, it is also used for early processing. Introduced by Ferry-Morse Seed Co. in 1951, plants are short, compact determinate, productive, with concentrated set. Fruit is globular, slightly flattened,



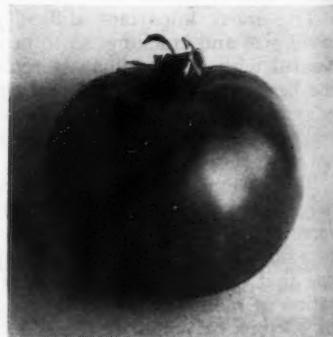
RUTGERS is the most widely adopted commercial variety. The leading variety in many areas, it is grown in the Midwest, East, South, and as far west as Texas.



STOKESDALE is adapted to the Tri-State area, New York, and Pennsylvania.

Burpee

CERTIFIED MARGLOBE is used for fresh market in the Tri-State area, New York, Pennsylvania.



AMERICAN VEGETABLE GROWER



Asgrow

**TEXTO 2** was developed for Texas growers by the Texas Agricultural Experiment Station. Of general Homestead type, with Rutgers type of fruit, it has field immunity to fusarium wilt and resistance to collar rot.

thick-walled, firm, and bright red with fair interior color. Plants and fruit are smaller than Improved Pearson.

#### First Early (62)

An Earliana type with fruit slightly larger than other Earliana strains, it is used in southern California for shipping because it sets fruit in cool weather. Large fruits are red, early, and smooth, with flattened globular shape.

#### San Marzano (73)

This small-fruited variety used for canning, solid pack and puree has medium, rather open plants, and is very prolific. Fruit is largely rectangular,  $3\frac{1}{2}$  inches long

ment Station and named after Dr. H. Loran Blood, a pioneer tomato breeder of the station. This variety is earlier than Moscow and Stone and a heavier yielder. Leaves of the plants are finely divided and have a



Joseph Harris

**FIREBALL** is an extra early tomato for the Midwest and East. It and Moreton Hybrid are replacing Victor and Valiant for early fresh market.

by  $1\frac{1}{2}$  inches, two-celled, borne in clusters, and deep red with little juice and mild flavor.

### Rocky Mountain States Utah and Colorado

More than 90% of tomatoes grown in this area are V. R. Moscow and Loran Blood.

#### V. R. Moscow (70)

This new superior strain of Moscow was introduced in 1953 and developed by Utah Agricultural Experiment Station and U.S. Bureau of Plant Industry. Resistant to Verticillium wilt, the vine is determinate and produces a heavy crop of fruit, somewhat exposed to the sun. Clusters of fruit are red, round, firm, and smooth.

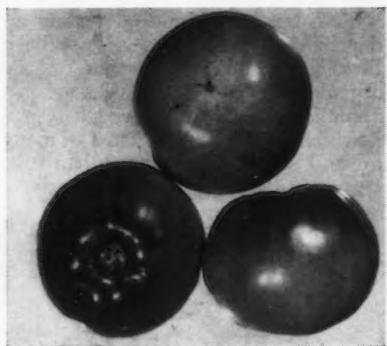
#### Loran Blood (70)

A new Verticillium-resistant strain developed by the Utah Agriculture Experi-



Asgrow

**LONG RED** is used for processing in the East. It and Red Jacket have largely replaced John Baer and Stokesdale for the main-season crop in New York, where both varieties originated.



Ferry-Morse

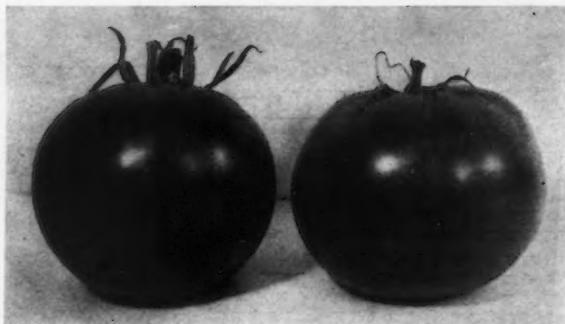
**HOMESTEAD F-M** is Ferry-Morse's selection of regular Homestead to get more uniform plant habit. Slightly less spreading; growth more dense, and more productive than Homestead.

tendency to curl in hot weather. The plants are nondeterminate and have good foliage. The fruit is smooth, slightly flattened, of about the same size as Stone, and ripens to a uniform red color.

#### Texas

#### Grothen's Globe (66)

One of the older varieties, it is largely used in parts of Texas, especially the lower Rio Grande Valley in the spring. This red-



Ferry-Morse

**MOSCOW** is a canning variety for the Rocky Mountain states. The improved Verticillium wilt-resistant strain is taking over much of the acreage.

fruited variety has plants light, open, and spreading mature. Fruit is medium large, globular, firm and solid, with the interior ripening slowly.

#### Rutgers (80)

More widely used in the Midwest and East, it is used in the Rio Grande Valley for the fall crop.

#### Texto

A selection of breeding material from Southeastern Breeding Laboratory seed was

(Continued on page 46)



Asgrow

**JEFFERSON** has performed well as a staked tomato in green-wrap areas of Florida and South.

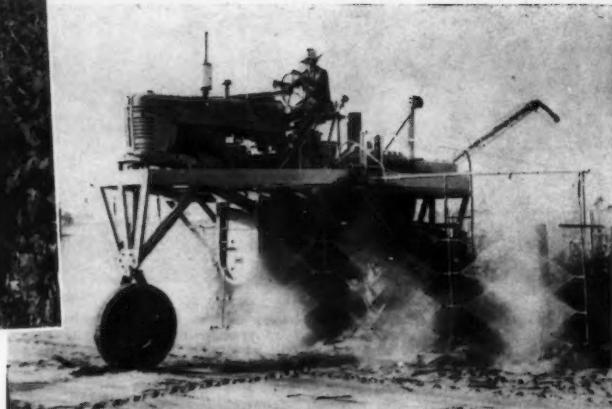


Cornell

**MANALUCIE**, developed by the Gulf Coast Experiment Station, has proved ideal for "vine-ripe" production in Florida. It is a heavy producer.



Louis F. Rauth and son, Glen, of Rauth Farms, Delray Beach, Fla. Rauth sparked the recent revival of the Florida vine-ripened tomato deal. Rauth Farms will have 240 acres of trellised tomatoes for vine-ripe harvest.



Type of high clearance sprayer used in stake and trellised tomato plantings in Florida.

# THEY SHIP TOMATOES in the Pink

**Florida growers are proving that vine-ripened tomatoes—  
tomatoes with that garden fresh quality—can be  
successfully marketed at a profit**

By DAVID G. A. KELBERT  
*Gulf Coast Experiment Station  
Bradenton, Fla.*

THE successful marketing of vine-ripened tomatoes from Florida during the past four or five seasons has started a new era in Florida agriculture.

Shipping field-grown, vine-ripened tomatoes to northern markets is not a new venture for Florida growers and shippers. Ripe tomatoes were shipped as early as 1926-27 from the lower east coast of Florida and later from the Palmetto-Ruskin area. These attempts met with varied success, but none was sufficiently spectacular to encourage growers to follow up on a permanent basis.

It was inevitable that with improvements in handling and transportation the "pink" deal would be revived. Tomatoes that have reached nearly full maturity or the pinking stage on the vines may now be placed in distant markets without undue loss.

These factors, together with the discovery by consumers that vine-ripened Florida tomatoes approach home-grown tomatoes in quality and

flavor, have created a demand that has been difficult to supply.

Tomatoes are produced mainly on the lighter sand lands of southern Florida and are not grown on the organic soils of the Everglades. To minimize disease and weed problems, newly cleared land is utilized in many areas. Seldom are more than two crops of tomatoes planted successively

on the same land, but in the older producing areas new land is becoming scarce and systems of rotations involving improved pastures are not uncommon.

The southern and central coastal areas of the state have two definite production seasons. Planting dates vary in different locations and often

(Continued on page 43)



Modern packing line for vine-ripened tomatoes. Expert hands handle fruits gently to keep bruising to a minimum.

# 12 TIPS TO HELP YOU Beat the Market

**Give your plants the cold treatment—if you want  
to be first on the market with early tomatoes**

By S. H. WITWER  
*Michigan State University*

**E**VERYONE wants to be first. For the professional grower or the amateur backyard gardener, nothing brings more satisfaction than to produce the first ripe tomato.

A memorable experience for me occurred several years ago. Clinton Carter, an early tomato grower near White Pigeon, Mich., had applied some of the suggestions made at an agricultural extension meeting earlier that winter. Arriving at the farm in mid-May, we saw a spectacular tomato planting.

In February, Carter had planted seed of several hybrids such as Stokes-cross 2, Earliana x Valiant, and Fari-bo Hybrid E. Field transplanting was completed by mid-April. Three acres



New polyethylene bonnets admit sunlight and may be opened for ventilation. Built-in or separate black plastic soil covers conserve heat, prevent weed growth and moisture loss, and favor earlier maturity. Covers are later removed and wire framework supports the vines. Photo courtesy Green Thumb Metal and Plastic Corp., Lexington, Ky.



Chilled tomato plant (left) grown in cold frame is sturdier, has thicker stem, stronger side shoots, flowers closer to the ground, and after fewer number of leaves, produces more flowers and fruit in the first clusters than greenhouse-grown plant (right).

of plants were set in a furrow a foot apart in rows spaced 6 feet apart.

Ten thousand windows, salvaged from discarded street cars in Chicago, were set up as an inverted V-shaped continuous tent over each row. Spaces between the windows were adjustable for ventilation.

MARCH, 1957

Because night temperatures during April and May were usually below 60°F, a fruit setting chemical was sprayed on the flower clusters. When temperatures dropped to freezing or below, an overhead sprinkling system was turned on.

A starter (transplanting) solution

high in phosphate was used when the plants were set, and a high fertility level was maintained. Recommended disease and insect control practices were followed.

By mid-June—a month before his neighbors had harvested their first ripe fruit—Carter was delivering truckloads of ripe tomatoes at the Benton Harbor Market for a very fancy price.

Here are some principles used by Carter, along with Michigan State University's latest recommendations for getting early maturity to beat the market.

- 1) Sow seed 65 to 70 days before you expect to transplant the crop outdoors.
- 2) Select the latest in proven new varieties. Moreton Hybrid, Big Early, and Early Hycross have done well in

(Continued on page 38)

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(page 43)



GETABLE GROWER

# TOMATO LAND, U.S.A.

**California's production of nearly 3 million tons of canning tomatoes in 1956—representing 60% of the total U.S. crop for processing—netted growers over \$60 million. Yields of 50 tons per acre are not uncommon in the Golden State. Here's how they do it!**

By JOHN C. LINGLE  
*University of California*

CALIFORNIA tomato yields broke all known records in 1956. Because of damage to the eastern tomato crop caused by the hurricanes in 1955, the canned stock carryover was one of the smallest in recent years. As a result, California tomato packers contracted for a record 150,000 acres in 1956. Near perfect growing conditions boosted the state average yield to a whopping 19 tons per acre.

Over 2,750,000 tons of tomatoes netted the growers over \$60 million. This tonnage packed out 11,592,042 cases of canned tomatoes, 16,298,709 cases of juice, 14,428,363 cases of catsup, 12,330,381 cases of paste and puree, and 9,027,509 cases of tomato and hot sauce, not to mention millions of cases of miscellaneous products.

Individual records fell by the score. Yields of over 50 tons per acre were recorded for conventional varieties, and one yield of 47 tons per acre was measured for a "pear" type variety. Five adjoining fields were observed that contained 1500 acres in a single block.

California usually produces around 100,000 acres of canning tomatoes, the production of which is concentrated in San Joaquin, Yolo, Sacramento, and Solano counties (See AMERICAN VEGETABLE GROWER, Feb., 1957).

The climate is partly responsible for the tremendous yields obtained and the concentration of the industry in this area. Summer day temperatures are high (frequently over 100°), but cooling late afternoon breezes always lower night temperatures below 70° and usually below 60°.

Night temperatures in the area are so cool fruit set does not begin until



**Tomatoes in field boxes in Yolo County preparatory to hauling to the cannery. This 200-acre field of Pearson averaged over 25 tons per acre on the second "pick." Total yield was over 50 tons per acre.**

after July 1. Night temperatures north and south of this area are too warm to permit proper fruit set for maximum yields.

The growing season is also quite long, averaging about 240 frost-free days. This allows the use of direct field seeding which reduces production costs.

Another reason for the tremendous yields is the adaptation of the Pearson variety. This and other varieties of similar parentage account for about 80% of the canning production. The Pearson is a large-vined determinate variety which sets fruit continually. The fruit of this variety also has the unusual ability of remaining firm on the vine for as long as 30 days after ripening. These characteristics allow the number of harvests to be reduced to about once in every three weeks, or usually three "picks" per season.

A third factor contributing to this production is volume of other processing crops grown in this or near by areas. Peaches, pears, apricots, asparagus, and plums are packed in great volume. This has attracted a number of large canning companies

to establish packing plants in the valley. These packing plants wind up their canning season with tomatoes which are harvested in late summer.

The soils of the valley are well suited to tomato production. They are all alluvial or organic in nature, and hence are deep and most are well drained. This allows for the development of a large root system which often reaches a depth of 6 feet or more.

The deep root system makes irrigation during harvest unnecessary, since a good irrigation just prior to harvest can store up to 18 inches of water in the soil. This amount is sufficient to finish maturing the crop. Since rainfall is light during the harvest season, losses from molds, rots, etc., are much lower than in the rest of the nation.

Direct-seeded tomatoes account for over 60% of the canning acreage. Seeding is begun in late February and is usually completed by April 1. After the plants have reached a height of 4 inches, they are thinned to 8 to 15 inches in the row.

*(Continued on page 52)*

A.

## New All-American Award Winners

from Northrup King

Here are the new award-winning vegetable varieties introduced by Northrup King. Look to Northrup King for further improved vegetable varieties—products of Northrup King seed research.



**GREENCROP BEAN** *AAS bronze medal winner.* Available in 1957. Introduced by Northrup King and developed by A. F. Yeager, U. of New Hampshire. An unusually good home, market and special processing bean—with flat, tender, good quality pods  $6\frac{1}{2}$  to 7 inches long. Pods are darker, slightly wider and of better quality than Bountiful. Plant stands 19" to 22", upright, vigorous, with large leaves. Aver. mat.: 51 days.

**RUBY QUEEN BEET** *AAS bronze medal winner.* Available in 1958. Introduced and developed by Northrup King. An excellent bunching beet for display at roadside stands or local markets. Root is round and smooth. Washes to an attractive, bright red color. Tops are short (only 10 to 12 inches) with a good green color. Aver. mat.: 52 days.

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GETABLE GROWER

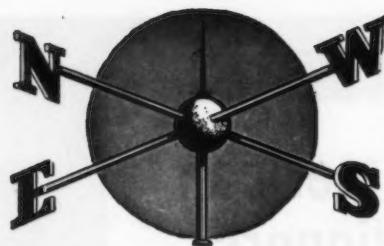
# NORTHRUP, KING & CO. ®

MARCH, 1957

MINNEAPOLIS  
13,  
MINNESOTA

17

# STATE



# NEWS

## • Lettuce Replaces Cotton—at a Profit—in New Mexico

## • Empire State Growers Learn About New Kind of Marketing Corporation

### Lettuce Replaces Cotton!

**NEW MEXICO**—Growers of fall lettuce in the Mesilla Valley, many of them cotton farmers using non-allotted acres, closed their 1956 season with an estimated gross of \$730,000 from a 500-acre crop, as compared with \$236,000 from 260 acres in the previous year.

Farm prices for the lettuce ranged from \$2.50 to \$4 a carton with an average of \$3.25, according to Ernie Johnson, Las Cruces vegetable broker. The early crop sold at the higher price. Estimated gross income per acre for the grower averaged around \$1625, or more than three times the current gross on two-bale cotton land in this area.

A total of 225,000 cartons or 350 carloads, averaging 400-plus cartons per acre, was harvested from fall lettuce acreage, while a 600-plus carton average was realized on early-planted ground. An early fall freeze crippled the late-planted fields.

—Robert Stearns

### Empire State Meeting

**NEW YORK**—"If I were going to buy a farm, I certainly wouldn't buy unless there was water available for sprinkler irrigation," said A. J. Pratt of Cornell University to a capacity audience of New York State vegetable and potato growers.

The occasion was the annual meeting of the Empire State Potato Club and the New



**Mrs. Stephen M. Merchant, Baldston SPA, president, Ladies Auxiliary, New York State Vegetable Growers Association, takes time out during annual meeting to visit commercial exhibits and to discuss varieties with Joe Robson, Robson Seed Farm.**

ment control. He reported that studies in New York state showed that summer rainfall varies widely, even from farm to farm.

**W. C. Kelly**, of Cornell, told growers that the key to the efficient use of fertilizer is the way it is placed in the soil.

Banding fertilizer with potatoes works very well, he reported, but with other vegetables, banding cannot be done so efficiently because there are no practical commercial fertilizer spreaders for banding small-seeded crops.

He reported that urea is now competitive in price with ammonium nitrate. In speaking of nitrogen solutions and liquid complete fertilizers, Kelly said that there is no real advantage over the dry forms as far as the plant is concerned. One advantage is that you can handle solutions with pumps.

He suggested that growers should anticipate the fertilizer needs of their plants. For instance, a corn plant will never make up the growth lost if fertilizer application is delayed until the leaves yellow. With sweet corn, Kelly reported, nitrogen must go on when the plants are 3 to 4 inches tall.

**Ike DeHollander** of Oswego reported on the newly formed American Onion Growers Co-operative. The objective of (Continued on page 20)



**Officers of New York State Vegetable Growers Association for 1957 are: First row: Carl Salmonson, East Syracuse, vice-president; Donald Shoemaker, Webster, president; Stuart Allen, Waterville, vice-president. Second row: Leon A. Swing, Penn Yan, vice-president; John Young, Glen Head, executive committee; Donald Bradley, Elmira, executive committee; William Giddings, Baldwinsville, secretary. Vice-presidents Al Wolly, Albany County, and Kenneth Sheldon, Oswego, not shown.**

York State Vegetable Growers Association, in Schenectady, in January.

Pratt told growers how shallow-rooted crops respond best to irrigation. He said that radishes at Ithaca, N. Y., even in a year of ample rain, produced 2 to 1 over non-irrigated radishes and had better quality.

"Some growers have controlled 20 degrees temperature on a frost-sensitive crop," Pratt said in speaking of sprinklers to fight frost. He also pointed out that sprinkler irrigation gives growers one more manage-

**only the finest . . .**

of Hand Cut, Crown  
Set Cantaloupes are saved for ROBINSON  
MOTHER STOCKS. We breed and produce  
nearly 80 Cantaloupe varieties.  
Are YOU profiting from using our  
Specialized Strains?

INSIST ON ROBINSEEDS FROM YOUR . . .

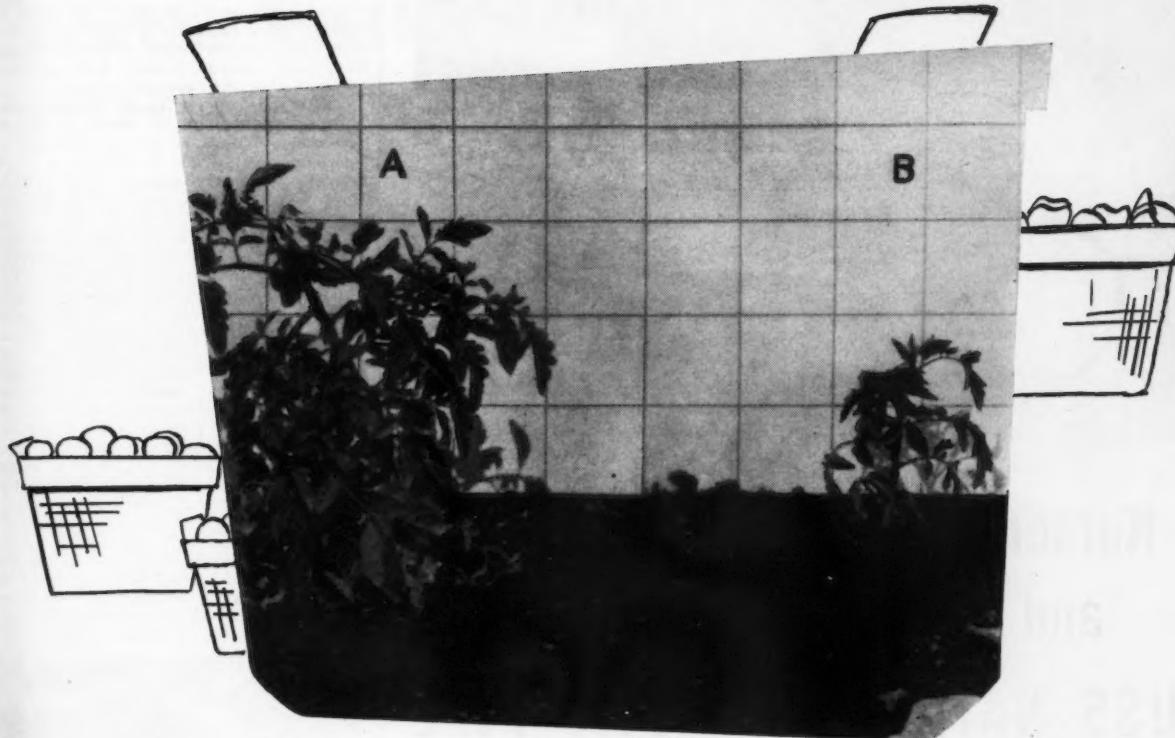
*Lawrence R. Robinson & Sons*  
MODESTO, CALIFORNIA

**SPECIALIST VINESEED BREEDERS**

CANTALOUPE • CUCUMBER • PUMPKIN • SQUASH • WATERMELON

# WS

to get your produce to market first...



give your transplants a good toe hold with  
**TAKE-HOLD (10-52-17)**

Tomatoes, cauliflower, cabbage, sweet potatoes, peppers and other vegetables grow *faster*...yield *more*...when you treat them with "Take-Hold" (10-52-17) at set-out time.

Photo above taken by the N.Y. Agricultural Experiment Station 3 weeks after transplanting tomatoes shows how plants take hold when treated with "Take-Hold." Plant A was treated with  $\frac{1}{2}$  pint of "Take-Hold" solution; plant B received  $\frac{1}{2}$  pint of water only at set-out time.

Only "Take-Hold" Gives You These Head-Start Advantages

1. *Plants get "set" faster...resume growth quicker...help you get crops to market in advance of regular season.*
2. *Fewer plant replacements...savings on labor alone should pay for "Take-Hold."*
3. *Plants mature earlier...com-*

mand in-advance-of-season prices.

4. *Plants bear longer...yield more.*
5. *Easy and economical to use...completely and instantly soluble (3 pounds to 50 gallons of water); no sludge to clog equipment; no settling tanks needed; no odor.*

### mand in-advance-of-season prices

**4. Plants bear longer...yield more.**

5. *Easy and economical to use... completely and instantly soluble (3 pounds to 50 gallons of water); no sludge to clog equipment; no settling tanks needed; no odor*

**Tomato yields—average 4 varieties  
Courtesy Michigan State University**

Nutrient	Early Tons/A	Early Gain	Total Tons/A	Total Gain
Water Only	7.1	..	16.4	..
"Take-Hold"	11.6	4.5	21.1	4.7

#### See the difference in yield

Order TAKE-HOLD (10-52-17) now!

**Write to:**

# **VICTOR CHEMICAL WORKS**

155 N. Wacker Drive  
Chicago 6, Illinois



A "T" connection being installed for running branch lines off feeder line. Connections are secured with stainless steel clamps.



Cutting 1-inch diameter NATIONAL Plastic Pipe. Knife may also be used.

## Nurseryman saves time, money, and reclaims land by using USS NATIONAL\* PLASTIC PIPE

Until he installed NATIONAL Polyethylene Pipe, George Hren, owner of Anton Hren Nurseries at Huntington, N. Y., was using ten 50-foot sections of hose to transport water to his plants. Dragging the hose from one place to another was a waste of time and money in man-hours. Mr. Hren tried a sprinkling system of NATIONAL Polyethylene Pipe. He was able to install it himself, quickly and easily, thus saving labor.

\*Trademark

costs. And the pipe's ability to withstand freezing temperatures without bursting eliminated the necessity of burying it below the frost line.

The moderate cost of NATIONAL Plastic Pipe, plus its economy of installation, permitted Mr. Hren to enlarge his nursery by reclaiming land which he had not been able to use previously due to the unavailability of water.

Look at these other advantages of NATIONAL Polyethylene Plastic Pipe:

- Resists acids, alkalis, and many other soil chemicals. Can't corrode.
- Remains tough and flexible from -90°F to +120°F. Won't crack.
- Made of only 100% virgin "on grade" polyethylene raw material.
- Available in sizes from 1/2 inch to 6 inches in diameter, in a variety of wall thicknesses.

For further information, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Specify Bulletin No. 29.

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



NATIONAL *plastic* PIPE

UNITED STATES STEEL

### STATE NEWS

(Continued from page 18)

the new co-op is to stabilize the price for onions.

John Carew, of Michigan State University, told New York growers about a marketing corporation in Michigan called Capac which seems to meet the needs of today's markets. Carew said that buyers now want a steady supply of a large volume of graded, waxed, cooled, and packaged vegetables of uniform quality.

Capac is a corporation, not a co-operative. It has a membership of over 50 vegetable producers. There is \$65,000 invested in buildings and \$25,000 in equipment. Each member bought 5 shares of stock at \$100. Last year the corporation did \$750,000 worth of business.

Carew said that the pitfalls growers must overcome in setting up such a corporation and making it operate successfully are: 1) growers must give up their freedom of marketing because all their produce must be marketed through the corporation; 2) it is necessary to hire a professional sales manager and pay him well; 3) a complicated bookkeeping system is necessary in order for costs to be charged fairly to each crop handled; 4) packing house operations must be efficient, more efficient than any grower can do alone; and 5) it is important to keep all members in the corporation well informed.

#### New Tomato

WISCONSIN—A new tomato variety, Wisconsin Chief, has been released by the University of Wisconsin. Developed by horticulturist Warren Gabelman, Wisconsin Chief is an early variety with



The new Wisconsin Chief tomato.

smooth, large, high quality tomatoes resistant to cracking and sunburning. It is expected the new variety will be especially valuable in the irrigated sandy soils of central Wisconsin—an area where truck crop acreage is expanding.

#### Seed Source Mistakenly Identified

In last month's article about the Russet Burbank we hasten to correct the statement about Myron Mommsen, of Rice Lake, Wis., and his source of supply for certified seed potatoes. To set matters straight, Mommsen has never planted Russet Burbank seed potatoes produced anywhere outside the state of Wisconsin.

To author John Schoenemann, under whose by-line the article appeared, to the Wisconsin Potato Growers' Association, and to Myron Mommsen, our apologies for our editorial slip.—Ed.

#### Same Price for Tomatoes

CALIFORNIA—The 1957 price for tomatoes grown for processing has been set by three major packers, Cal-Pack, Heinz, and Stokely at \$22.50 per ton—the same price as last season.

One of the reasons for no price change is attributed to the possibility of depressing the canned tomato and tomato products market through offering a lower price to the producer—Neale Leslie.

AMERICAN VEGETABLE GROWER

## NEWS

From page 18)

stabilize the price for

Michigan State University growers about a market in Michigan called to meet the needs of new said that buyers supply of a large volume cooled, and packaged quality.

not a co-operative of over 50 vegetable \$65,000 invested in in equipment. Each car of stock at \$100, corporation did \$750,000.

pitfalls growers must to such a corporation successfully are: 1) up their freedom of their produce must the corporation; 2) a professional sales well; 3) a compensation system is necessary in charged fairly to each ing house operations more efficient than any and 5) it is important in the corporation

new tomato variety, has been released by Wisconsin. Developed by Loren Gabelman, Wisconsin early variety with



Chief tomato.

quality tomatoes red sunburning. It is variety will be especially irrigated sandy soils—an area where expanding.

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VEGETABLE GROWER

# "Let's talk IRRIGATION . . ."



"ONCE I have surveyed my customer's irrigation needs, the first thing I settle is the pump. It's the heart of the system. It must be right as to size and performance or my customer's investment won't pay off at full value.

"That's why I select Gorman-Rupp Irrigation Pumps. From their 26 models, I can choose the exact pump for the job to be

done. My customers like them. There's none better—for low fuel cost, maintenance and work-horse pumping.

"And, with Gorman-Rupp Pumps, I can design an *engineered* system that's geared to the crops, soil and land contours . . . a system planned for profit, not built piecemeal."

Make sure your irrigation system is *engineered to your needs*. See your nearest Gorman-Rupp Irrigation Pump Dealer or fill out the attached coupon. No obligation.

Pictured is Mr. Kenneth Dennehy of General Irrigation Co., Warehouse Point, Conn., who sells Gorman-Rupp Irrigation Pumps.

### THE GORMAN-RUPP COMPANY 305 Bowman Street, Mansfield, Ohio

Gentlemen: I want an *Engineered Irrigation Plan* developed for my farm. Have your Irrigation Pump Dealer contact me at no obligation to me.

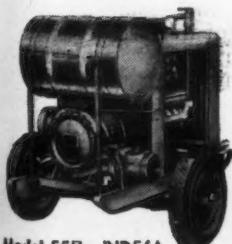
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Irrigation Acreage Estimate \_\_\_\_\_ Acres

Lake  River  Ditch  Pond  Well



Model 55M-IND56A

MARCH, 1957

## THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio

# Boost yields with 45% nitrogen apply Du Pont NuGREEN® FERTILIZER COMPOUND

—it's concentrated for efficiency

SPREAD  
NUGREEN®



Top-dressed, side-dressed or plowed down, "NuGreen" feeds crops nitrogen as they need it for profitable, season-long growth. "NuGreen" aids decay of plant residues and cover crops, and it resists leaching.

SPRAY OR  
IRRIGATE WITH  
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Sprayed on foliage or dissolved in irrigation water, "NuGreen" feeds crops nitrogen through leaves and roots, giving them a growth boost almost instantly. "NuGreen" can be combined with pesticide sprays for even greater application economy.

FLY ON  
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Uniform distribution by air is easy with Du Pont "NuGreen" because it is concentrated 45% nitrogen in free-flowing shot form . . . gives you more coverage per flight. "NuGreen" won't corrode equipment and saves you labor because you handle less material per unit of nitrogen.

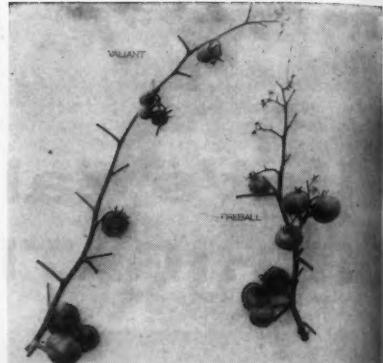
You profit with Du Pont "NuGreen" no matter how it's applied . . . your crops will be fed nitrogen for maximum growth and yields. "NuGreen" comes in 80-lb. bags—order Du Pont "NuGreen" from your supplier today.



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

it's concentrated  
45% nitrogen



Two types of inflorescence: Valiant, at left, is an indeterminate type; Fireball is determinate.

## FLOWERING HABITS

Is your tomato variety determinate or indeterminate?

By JOSEPH M. LENT  
*University of Connecticut*

FLOWERING habits are of great significance to tomato growers. In the case of the tomato there are two main types of inflorescence, the determinate and the indeterminate.

**Indeterminate**—In this habit of growth, plants may continue their growth more or less indefinitely, as long as environmental conditions are favorable. Normally a blossom cluster is produced at every third internode being separated by three leaves. Usually this type produces the highest total yields and is generally used for fresh market and processing.

**Determinate**—In some varieties an inflorescence occurs more frequently than at every third internode, sometimes as often as at every node, these being separated by only one, two, occasionally three or no leaves between the flowering trusses. The stem eventually terminates in a blossom cluster.

This habit of growth is called "self-topping" or "self-pruning" by the seedsmen. The advantage of this type of plant is the greater number of flower trusses within a given length of vine and the tendency of the plant to mature its crop earlier than the indeterminate type. Generally home and market garden plantings are of this type.

It has been somewhat difficult to know into which category a variety fits. In seed catalogs and other literature I have found differences of opinion concerning the classification of varieties as to inflorescence.

The variety Valiant, which we are using in a boron experiment, was

(Continued on page 55)

AMERICAN VEGETABLE GROWER

RUSH THIS COUPON  
TODAY

Chester Packaging Products Company  
684 Nepperhan Ave., Yonkers 2, N. Y.

Rush information and sample of Cheslene Polyethylene Plastic Mulch.  
 Rush your special offer of 1600 ft. of 3 foot wide Cheslene Polyethylene Mulch for \$35.00. F.O.B. Yonkers, N. Y.

Check  Money Order  Enclosed

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## CHESLENE BLACK PLASTIC

# MULCH COVER

- ★ Increase Crop Yields Up to 30% or More
- ★ Get Better Crops Faster . . . to market earlier.
- ★ Control weeds . . . conserve moisture . . . hold soil treatment . . . reduce soil packing . . . cut disease and ground spotting.
- ★ Increase nitrification . . . get better seed germination and emergence.
- ★ Lowest Cost and Most Efficient Mulch!
- ★ Use over again for as long as 4 years.
- ★ Easily laid . . . seed easily jobbed through . . . easily irrigated and fertilized.

Send coupon today for complete information and samples of

## Cheslene Plastic Mulch Cover

**CHESTER PACKAGING PRODUCTS CORP.**  
*A Division of St. Regis Paper Co.*

684 Nepperhan Ave., Yonkers 2, N. Y. Yonkers 8-6500  
Offices in New York—Chicago—Montreal

**DISTRIBUTORS ACT TODAY!**  
**TERRITORIES AVAILABLE!**

**CHESTER**

Valiant, at left, is  
determinate.

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variety de-  
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M. LENT  
Connecticut

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page 55)

VEGETABLE GROWER

# SALES UP

## with JOHNSON'S WAX for fruits and vegetables!



Fresh vegetables given a "beauty treatment" with Johnson's Wax have maximum eye-appeal. The better they look, the better they sell. Once waxed, many vegetables sell in greater volume and command top prices.

That thin, glossy coat of Johnson's Wax preserves peak freshness and quality. It also greatly reduces losses from shrinkage and spoilage. Any way you look at Johnson's Wax, it is a definite selling aid in the vegetable business.

Shoppers demonstrate their preference for waxed vegetables by moving them out of the stores quickly . . . even at premium prices. And that, of course, means better business all along the line . . . for jobbers, shippers, packers and producers.

Inexpensive and easy to apply, Johnson's Wax can boost the sales of many vegetables. For full information, contact your local Johnson distributor or write: S. C. Johnson & Son, Inc., Agricultural Waxes, Dept. AVG-17, Racine, Wisconsin.

A product of Johnson's Wax Research



## TOMATO NURSERIES

California produces millions of plants for Golden State growers

By C. A. SHADBOLT  
*University of California*

ONE of the biggest tomato field nursery operations in the United States has recently grown up in southern California's Coachella Valley.

There, under nearly ideal conditions of warm, sunny winter days and cool nights, vigorous, stocky, and hardy tomato plants are produced. These plants thrive when transplanted in spring to cooler northern areas near canning plants in the Sacramento and San Joaquin Valleys. During recent years substantial numbers of plants have also been transported by air as far east as Chicago.

Last spring 184 million plants grown on 850 acres were shipped from the Coachella Valley. This represented enough tomato plants to produce nearly 50,000 acres of the canning crop, or nearly one-third of the total state production. The total value of these plants was nearly a million dollars.

In order to prevent possible disease and nematode infestations, and to qualify for the Intercounty Nursery Stock Certificate, the growers must comply with a list of treatment and handling methods set up by the State Department of Agriculture.

These specify that the crop must be grown in an area where the mean maximum temperature exceeds 100° F. for at least 30 days of the year. The land must not have been planted to any crop except tomato nursery or cereals for at least three years. An annual fumigation program, using D-D or EDB, must be practiced, and all natural organic fertilizers must be applied prior to fumigation.

### State Inspection

Nursery fields are subject to inspection by state officials throughout the growing season, mainly to detect the presence of nematodes. At the time of shipment all plants are further inspected by officials representing both the county of origin and the county of destination.

Several varieties, depending upon the demands of the growers, are produced each year. The largest volume of plants, however, consists of the varieties Pearson Improved, (Continued on page 26)

# ATO RIES

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age 26)

ETABLE GROWER

# Worl Brothers, Best Tomato Growers

Quoted from the Peru, Indiana Tribune

## Bunker Boys Average Over 30 Tons, Acre

Harvested Nearly  
Half-Million Pounds  
On Less Than 8 Acres

LAFAYETTE, Ind. (UP)—Two Bunker Hill brothers were acclaimed today as the greatest Indiana tomato growing champions of all time.

Garry Worl, 20, and his brother Terry, 18, harvested nearly half a million pounds of tomatoes from a field less than eight acres in size to rack up the best per-acre average ever recorded in competition by either a 4-H or an adult grower in Hoosierland.

On the official records, their achievement was listed as an average of 30.53 tons per acre from 7.94 acres. The record-breaking status of the yield was attested to by Roscoe Fraser, Purdue University extension horticulturist.

The Worl brothers won the 1956 Indiana 4-H tomato contest. Along with the victory they collected prizes from the sponsoring Indiana Canners Association and the Kokomo canning firm of Libby, McNeill & Libby, to whom the crop was sold.

The Worls made a net profit of \$2,942 on their crop, an average of \$370 an acre. They grew the tomatoes in a field used for corn the last two previous years.

Runnerup was Denny Middleworth, Greentown.

Kenneth Lucas, Royal Center, won the double-tonnage division of the contest, for growers who sell their crop on an ungraded basis. Lucas' yield averaged 22.5 tons from 1.7 acres. He believed he might have approached the Worl record yield if rain had occurred at the right time.

You, Too, Can Grow  
Championship Tomatoes  
with



## NIACIDE Z

Gives Exceptional Control Over  
Anthracnose and Other Diseases

Worl Brothers used Niacide Z to help compile their remarkable record. Here is proof positive of the outstanding protective qualities in this potent Niagara fungicide. It's in wide use throughout all tomato growing areas for the control of that costly problem, anthracnose, as well as early blight, septoria and certain minor tomato diseases. Prove to yourself, this coming season, the merits of Niacide Z. For full facts see your Niagara field man or local Niagara dealer.

## Niagara CHEMICAL DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, N. Y., Richmond, Calif., Jacksonville, Fla.,  
Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans,  
La., Ayer, Mass., Harlingen, Tex., Yakima, Wash., Pine  
Bluff, Ark., Canadian Associate: NIAGARA BRAND  
SPRAY COMPANY, LTD., Burlington, Ontario



# DURASET-20W

## Prevents Fruit Drop

## Assures Uniform Top Quality



### increases lima bean yield 80% to 100%

Discovered by our research teams, DURASET\*-20W, a new flower and fruit-setting hormone, was cooperatively developed with many state and federal experiment stations.

1. Increases yield—insures first pick
2. Gives more uniform bean maturity
3. Allows a continuous planting schedule
4. Insures continuous harvesting operations
5. Is easy to use

Tests on tomatoes, strawberries, peppers, apples and small seeded legumes show promising results with Duraset.

Order DURASET-20W from your local supplier today.  
Write, wire or phone us if unable to locate source of supply.

\*U.S. Patent No. 2,556,665



### United States Rubber

#### Naugatuck Chemical Division

Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

### TOMATO NURSERIES

(Continued from page 24)

J. Moran, and Earlypak. The tomatoes are usually planted from late December through February 15. Those planted first are ready for shipment in March, but the bulk of the crop is pulled from April 15 through May.

Seed is precision-planted to about 1-inch spacings in 8 rows on each bed. The beds are spaced at 34 inches and about 10 pounds of seed are used per acre.

A complete fertilizer is drilled in the top of each bed before planting, with additional nitrogen side-dressed later in the growing season as the crop requires. Excess nitrogen must be avoided to keep the plants from becoming too succulent.

### Plant Protection

Protection from wind and frost is usually required, particularly in the early-seeded crop. This is accomplished by the erection of 15-inch kraft brushing paper on the north side of every bed. Irrigation water is often run in the furrows during radiation frosts to provide additional heat. Tall windbreaks sometimes are erected around the whole field to give added wind protection.

All plants are pulled by hand and bunched into bundles of 50 each. They are then brought into the packing shed where 25 of these bundles are packed into paper-lined lettuce crates. Peat moss, mixed with water in a large cement mixer, is conveyed to an assembly line, where it is packed around the roots of the plants.

Within a few hours after the plants are pulled, they are loaded into trucks to start their 500-mile, 15-hour trip north. Some of these trucks have forced-air ventilation with ice bunkers.

THE END.



Courtesy U. of Maryland  
Reliable tomato nurseries will supply strong, healthy, disease-free plants like these.

AMERICAN VEGETABLE GROWER

## SERIES

page 24)

h. The tomatoes are ready for the bulk of the field from late February 15, to April 15.

nted to about 34 rows on each 34' spaced at 34 pounds of seed.

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THE END.



The John Deere 2-3 Plow "420" Standard Tractor, shown with a 4100 Series Cultivator, has ample (21-inch) clearance for working vegetable crops.

# Boost Your Earning Power with a New JOHN DEERE 420

**Y**OU'LL like the modern looks of a new John Deere "420"—and you'll profit by its stepped-up Earning Power. It handles 3-bottom plows or big-capacity PTO machines under most conditions. It matches the work output of much larger tractors in many operations. Best of all, it saves you money. The first cost is low. Fuel and maintenance economy is exceptional. And the "420" is available with a full line of low-cost, time- and labor-saving tools.

The "420" Standard provides slow speeds for one-row transplanting and cul-

tivating, and fast (12 mph) speed for transporting... "live" Touch-o-matic hydraulic system for precision control of working tools, with 3-point hitch for rapid, easy tool change... Load-and-Depth Control for uniform tillage as ground conditions vary. Optional equipment includes Dual Touch-o-matic... 5-speed transmission with an extra speed of 6-1/4 mph, ideal for rotary hoeing, mowing, etc. . . . continuous-running PTO (with 5-speed transmission) . . . direction reverser . . . auxiliary foot throttle . . . power-adjusted rear wheels.

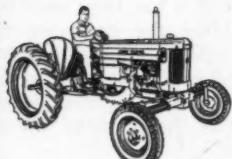
### Matched Working Tools of All Kinds

- Plows of All Types
- Field Cultivators
- Planters and Drills
- Spring-Tooth Harrows
- Fertilizing and Side-Dressing Attachments
- Tool Carriers
- Disk Harrows
- Disk Tillers
- Cultivators
- Rotary Hoes
- Subsoilers
- Scoop
- Mowers
- Fork Lift

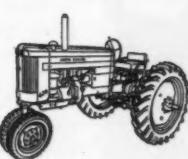
Plus many other items of equipment that will help you get all the benefits of the high Earning Power of your John Deere "420" Tractor.



### Choose the "420" That Fits Your Needs Exactly



"420" ROW-CROP UTILITY



"420" TRICYCLE

At your John Deere dealer's—see and drive the "420" designed for your needs. Get all the facts about the complete John Deere Tractor Line.

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 "420" Standard       "420" Tricycle  
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# JOHN DEERE

"WHEREVER CROPS GROW, THERE'S A GROWING DEMAND  
FOR JOHN DEERE FARM EQUIPMENT"

U. of Maryland  
I supply strong,  
ts like these.  
TABLE GROWER

Get on  
the **BIRD  
VITA-BAND**

wagon!



Eliminate

**TRANSPLANT SHOCK  
Speed Crop Maturity  
By 7 to 10 Days**

Bird Vita-Bands contain root growth to transplant stage. Transplant shock is completely eliminated, resulting in 7 to 10 days earlier crop maturity. You save watering time because Bird Vita-Bands retain moisture longer. You reduce potting time — it's so simple to pack a whole flat with soil. And Vita-Bands make handy individual containers for retail sales.

Bird Vita-Bands are saturated with nitrogen to feed plant during initial stages of growth. There's no nitrogen depletion of soil. Three types of Vita-Bands fill all your needs:

**Bird Vita-Band "10":** Contains roots from 8 to 10 weeks on annuals, perennials, and vegetable plants. Easily removed at transplant time.

**Bird Vita-Band "H":** Heavier band designed for longer growing periods — up to 40 weeks. Special coating on outside seals microscopic holes which roots would otherwise find. Band easily removed at transplant time.

**Bird Vita-Band "D":** Contains growth until you let roots through band. At time of transplanting simply crack band to allow root penetration. Band then quickly disintegrates.

Bird Vita-Bands are available in variety of sizes:  $1\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$ ;  $1\frac{3}{4} \times 1\frac{3}{4} \times 2\frac{1}{2}$ ;  $2 \times 2 \times 2\frac{1}{2}$ ;  $2 \times 2 \times 3$ ;  $2\frac{1}{2} \times 2\frac{1}{2} \times 3$ ;  $3 \times 3 \times 3$ ;  $4 \times 4 \times 3$ ;  $4 \times 4 \times 4$ . Exception: Vita-Band "H" not available in  $1\frac{1}{2} \times 1\frac{1}{2} \times 2\frac{1}{2}$ .

Order from your distributor or write for free literature to:

**BIRD & SON, Inc.**  
DEPT. AVG-2

EAST WALPOLE, MASS.

Also Manufacturers of Roofing and Flooring Materials



Stake puller travels at rate of 2 to 3 miles per hour and pulls out stakes of irregular shapes and lengths. Rubber-covered drums grip the stakes and carry them to hopper at rear from which they are dumped.



## SET TOMATO STAKES

*Quick as a Wink!*

Taking their cue from West Coast pole bean farmers, tomato growers are turning to mechanical stake presses

By JIM REAR

GROWERS who are cashing in on the vine-ripe deal have learned that it is essential that the crop be held up off the ground during the growing season. Staking or trellising is the rule.

Mechanical staking uses hydraulic or mechanical power to force the stake into place. It involves no change in method or number of stakes used. Any tractor with a hydraulic system can be used to operate the press.

A two-man team—one to drive the tractor and one to set the stakes—can put in from five to 10 stakes a

minute. The stake press, which sells for as little as \$100, handles stakes of any length or shape. The operator simply positions the stake on the ground, closes the jaw of the press, and engages the hydraulic lever, forcing the stake into the soil at the desired depth. Multiple-row machines are also in use.

Where the stakes are more uniform in size and larger acreages are involved, a continuous-feed press is used. With this machine the tractor is never stopped. It consists of a pair of rubber-covered drums, so timed and powered as to grip the stake and roll it into the soil at a predetermined rate and depth.

With 2-foot spacings this machine can set 50 stakes per minute. Continuous-feed presses are used extensively on the West Coast for pole beans, and are being tried now on tomatoes and seed cabbage.

The newest method is the use of an overhead trellis wire with heavy twine running down to the plant. Some Florida growers use this method, and in New England it has been used for some time. Here the stake presses still perform well, handling the larger 2x2 or 2x4 stakes as efficiently as the 1x1's. A wire spooler is used to run out the wire as the machine travels down the row.

Some work is being done with the use of the bean stringer to weave a web of vertical strings heavy enough to support the tomato vines and around which the plant can entwine as it grows.

THE END.



This continuous-feed peg-type press can set 50 stakes a minute, using hydraulic power of tractor. Operator positions stake, and pair of rubber-covered drums alongside seat grip it and roll it into soil at selected rate and depth.

For information on mechanical stake presses, stringers, and stake pullers, write to Rear's Farm Service, 755 River Ave., Eugene, Ore.

AMERICAN VEGETABLE GROWER



## *Wink!*

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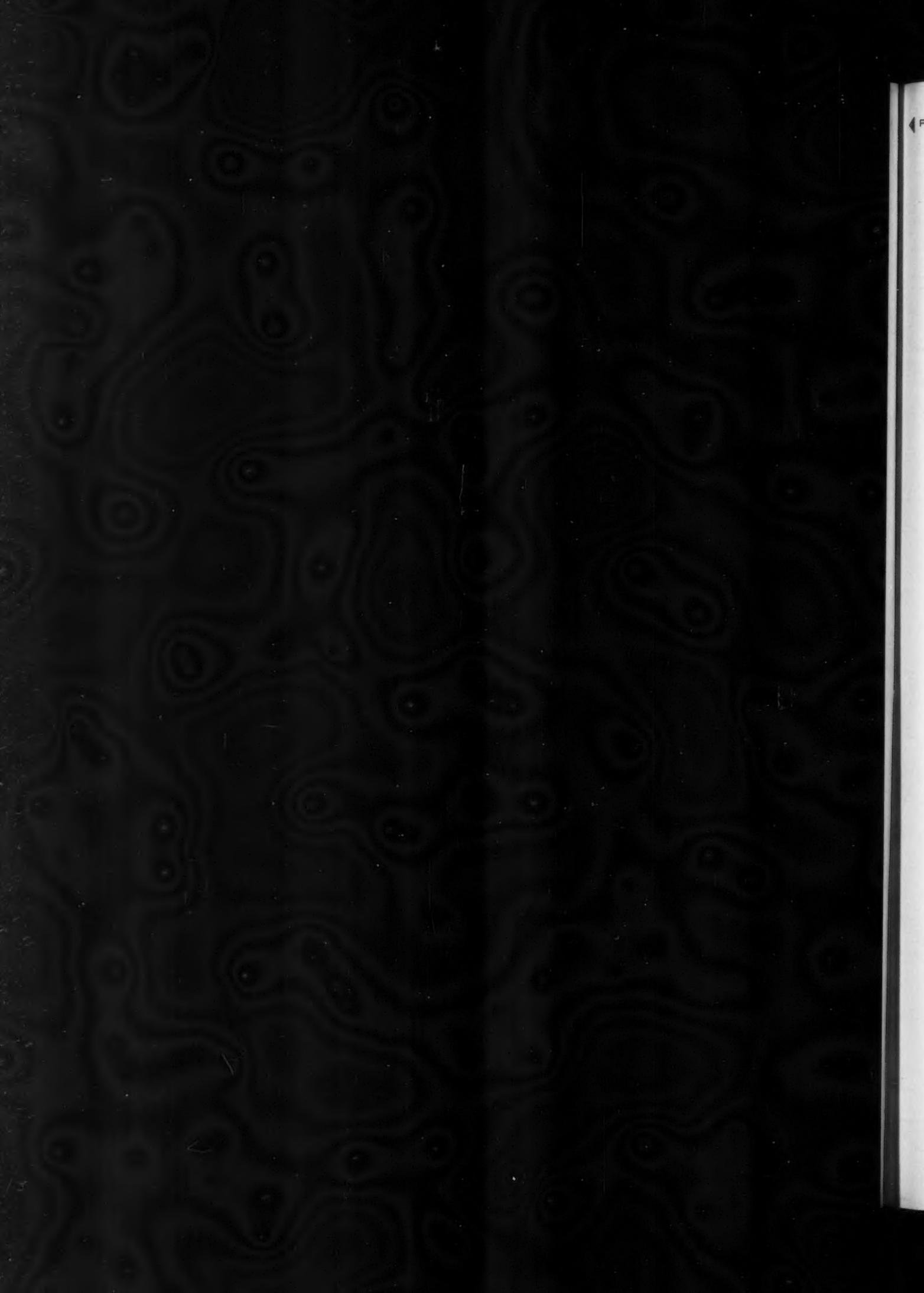
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stake presses,  
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, Ore.

TABLE GROWER



This is your  
1957 **MALATHION** GROWER'S GUIDE

...the basis for a complete  
insect control program  
all through the season

Here's exactly what malathion's combination of *high* toxicity to insects and *low* toxicity to man can do for you...

**You kill more insects**

Malathion is an aphicide and miticide and general insecticide for fruits, vegetables, forage crops and flies. It kills 82 pests on 47 crops, lets you cut the number of insecticides you buy and handle. This guide shows how malathion *alone* is a complete program for many crops.

**You get safety-in-use**

Though a phosphate, *low* toxicity to man and animals makes malathion "one of the safest insecticides to handle" (USDA). Precautions for safe handling are similar to those required for DDT. Malathion is compatible with most fungicides, liquid fertilizers, insecticides.

**You can control insects**

**close to harvest—**

Federal law has established tolerances on insecticide residues at harvest. Malathion's low toxicity to man and animals has given it a relatively high tolerance. Its rapidly disappearing residues will be well below this limit when applied *as close as 72 hours (3 days) from harvest* of many crops. You get thorough, late-season cleanup of insects without residue problems!

**You can control  
DDT-resistant pests**

You can control insect strains resistant to DDT and other chlorinated hydrocarbons...for example, grape leafhopper, codling moth, and flies resistant to DDT...red-banded leaf roller resistant to DDD.

**CYANAMID**

**pull up—keep for handy reference**

# 1957 MALATHION

## FRUITS

**Thorough, full-coverage applications should be made.**

FRUITS										
Thorough, full-coverage applications should be made.										
pests	amount			Number of Applications	Days Before Harvest for Last Application					
	Emulsifiable Liquid Per 100 gals.	Lbs. Wettable Powder 25% Per 100 gals.	Lbs. Dust Per Acre							
<b>Apples</b>										
Woolly apple aphid Bud moth	1 pt.	2	—	1+	3					
Green apple aphid Rosy apple aphid	1½ pts.	2 2½	—	1+	3					
Mealybug	1-2 pts.	2½	—	1+	3					
Mites such as: European red mite Clover mite *Willamette mite *Two-spotted mite	1-2 pts.	2-2½	—	2+	3					
* Make at least two applications 10-12 days apart in summer months										
Codling moth Plum curculio Red-banded leaf roller	2 pts.	3	—	1+	3					
Forbes scale	1 pt.	2½	—	2-3	3					
These pests are also controlled by combining 1½ pts. Emulsifiable Liquid or 2 lbs. Wettable Powder and 2½ lbs. 50% Methoxychlor WP or 2 lbs. 50% DDT, WP.										
Malathion Emulsifiable Liquid may cause injury to McIntosh and Cortland varieties in summer sprays.										
<b>Pears</b>										
Mites	1-2 pts.	2-2½	—	2+	3					
Pear psylla	1-2 pts.	2-2½	—	1+	3					
Mealybug	1-2 pts.	2½	—	1+	3					
Codling moth Plum curculio Fruit tree leaf roller Red-banded leaf roller	2 pts.	3	—	1+	3					
The same combination treatment suggested for apples can be used for pears. Injury may occur to Bosc pears under certain conditions in the Northeast using malathion sprays.										
<b>Peaches</b>										
Mites such as: European red mite Two-spotted mite	—	2-2½	—	2+	7					
Oriental fruit moth Plum curculio	2 pts.	3	—	2+	7					
San Jose scale	California only—Prepare a tank mix of 3 pounds 25% Wettable Powder plus 2 gallons of oil emulsion plus 4 pounds of fixed copper per 100 gallons of water. Apply only when trees are dormant.									
The same combination treatment suggested for apples can be used for peaches.										
<b>Apricots</b>										
Codling moth Orange tortrix European Lecanium scale Soft brown scale Aphids	1½-2 pts.	4	—	1+	7					
The same combination treatment suggested for apples can be used for peaches.										
<b>Avocados</b>										
Latania scale Greenhouse thrips Omnivorous looper Orange tortrix Soft brown scale	1½ pts.	3	—	1+	7					

pests	amount			Number of Applications	Days Before Harvest for last Application			
	Emulsifiable Liquid Per 100 gals.	Lbs. Wettable Powder 25% Per 100 gals.	Lbs. Dust Per Acre					
<b>Cherries</b>								
Black cherry aphid	—	2	—	1+	3			
Black cherry aphid and Fruit tree leaf roller	1½ pts.	—	—	1+	3			
Injury may occur on certain varieties of sweet cherries particularly in the Northwest.								
<b>Cranberries</b>								
Leafhoppers	1½ pts.	2½	50 by airplane 30-40 by ground ma- chine 4 or 5%	1+	3			
Black-headed fireworms								
Spittlebug nymphs	1½ pts.	2½	—	1+	3			
Cranberry fruitworm								
<b>Grapes</b>								
Leafhopper	1½ pts.	1-1½	20-40 lbs.	1+	3			
Spider mites	1½ pts.	—	4% + Sulfur	2+	3			
Mealybugs	1½ pts. (50-100 gals.)	—	—	1+	3			
Injury may occur on Ribier grapes with Emulsifiable Liquid.								
<b>Dates</b>								
Nitidulid beetles	—	—	4 or 5%	1+	7			
Apply thoroughly to each cluster.								
<b>Pineapple</b>								
Mealybug	1 pt.	2	100 4 or 5%	1+	7			
<b>Plums &amp; Prunes</b>								
Mealy plum aphid	1 pt.	1	—	1+	3			
San Jose scale Prunes only	California only—Prepare a tank mix of 3 pounds 25% Wettable Powder plus 2 gallons of oil emulsion per 100 gallons of water. Apply only when trees are dormant.							
Plum curculio and Mealy plum aphid	See combination below							
These pests can be controlled by combining 1-1½ pts. Emulsifiable Liquid or 2 lbs. Wettable Powder and 2½ lbs. 50% Methoxychlor WP or 2 lbs. 50% DDT, WP.					With DDT 50 Methoxychlor 14			
<b>Strawberries</b>								
Aphids Spider mites	1½ pts.	2½	40 4 or 5%	1+	3			
<b>Blueberries</b>								
Cranberry fruit worm	—	2	—	4+	3			
Cherry fruit worm	—	4	—	4+	3			
Blueberry maggot	—	—	25 4%	4+	3			
<b>Ornamentals</b>			<b>Poultry</b>					
Malathion sprays and dusts stop practically all insects attacking ornamentals. Malathion 4% dust stops chicken red mite, northern fowl mite. Dust, or sprinkle on floor, nests, roosts. Do not apply directly to birds. Avoid contamination of water, feed.								

# THION Grower's Guide

pull up - keep for handy reference

Number of Applications	Days Before Harvest for Last Application
1+	3
1+	3
in the Northwest.	

1+	3
in the Northwest.	

1+	3
in the Northwest.	
1+	3

1+	3
in the Northwest.	
2+	3

1+	7
in the Northwest.	
1+	7

1+	3
of 3 pounds 25% Wet emulsion per 100 gallons are dormant.	
—	—

—	—
With DBT 30 Methoxy-chlor 14	
4+	3

4+	3
4+	3
4+	3

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## VEGETABLES

Thorough, full-coverage applications should be made.

pests	amount			Number of Applications	Days Before Harvest for Last Application
	Emulsifiable Liquid Per 100 gals.	Lbs. Wettable Powder 25% Per 100 gals.	Lbs. Dust Per Acre		

### Tomatoes

Spider mites	1 1/2 pts.	2	35-45 4or5%	1+	3
Aphids	1 pt.	2		1+	3
Tomato russet mite	—	2-4		1+	3

### Peas

Pea aphid	1 1/2 pts.	—	25 4or5%	1+	3
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### Beans

Mexican bean beetle	1 1/2 pts.	—	30-35 4or5%	2+	3
Leafhopper	—	—	30-35 4%	2+	3
Spider mites	1-1 1/2 pts.	—	—	2+	3

### Broccoli • Cabbage • Kale Turnip • Mustard

Aphids Imported cabbage worm Cabbage looper	1-2 pts.	2	30 4or5%	1+	7
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### Brussels Sprouts

Aphids	1-2 pts.	2	30 4or5%	1+	7
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### Cauliflower

Aphids	—	—	50 4%	1+	7
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### Peppers

Aphids	1 pt.	2	—	1+	3
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### Eggplant

Aphids Spider mites	1 pt.	2	—	1+	3
Lace bug	3 pts.	—	—	1+	3

### Beets

Aphids	1 1/2-2 pts.	—	—	1+	7
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### Potatoes

Aphids Leafhopper	1 pt.	2 1/2	25-30 5%	1+	3
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### Onions

Thrips	1 1/2 pts.	4	30-40 4or5%	1+	3
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### Spinach

Aphids	2 pts.	—	30-35 4%	1+	7
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## pests

## amount

Emulsifiable Liquid Per 100 gals.	Lbs. Wettable Powder 25% Per 100 gals.	Lbs. Dust Per Acre	Number of Applications	Days Before Harvest for Last Application
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### Cucumbers • Squash • Melons

Aphids Spider mites	1 1/2 pts.	—	30-35 4or5%	1+	3
Leafhopper on melon	—	—	30-35 4or5%	1+	3

Do not apply malathion to cucurbits unless plants are dry.

### Lettuce

Aphids	2 pts.	2	30-40 4%	1+	7
Mites	—	—	30-40 4%	1+	7
Cabbage looper	—	—	30-40 4%	1+	7
Leafhoppers	2 pts.	—	—	1+	7

### Celery

Aphids Spider mites	1 1/2 pts.	—	—	1+	7
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### CITRUS

### Grapefruit • Lemons • Limes • Oranges Tangerines • Tangelos • Kumquats

California red scale Yellow scale Purple scale Black scale (single brooded) Soft scale Citricola scale	1-1 1/2 pts.	2 1/2-3 1/2	—	1+	7
(this dose also controls off-brooded black scale)					
Florida red and purple scales (light and medium infestations)	2 pts.	3-light 3-5— medium	—	1+	7
Thrips Dosage per acre	2 1/2 pts. per 200 gals.	6	—	1+	7
Green citrus aphid	—	1-2	—	1+	7
Mediterranean fruit fly	—	2-3 lbs.* per acre	—	1+	3

Make no applications when trees are in bloom. For further information on use of malathion, either alone or in combination with petroleum oil, parathion or other materials, see local agricultural authorities.

\*Add 1 lb. of Yeast Hydrolysate or 1 qt. sause base #2. Use sufficient water for good coverage by ground or air equipment. Malathion may be toxic to certain species of fish, particularly in shallow water.

## FIELD

### Alfalfa

Aphids Potato leafhopper Spider mites Alfalfa weevil larvae Spittlebug	1 1/2-2 pts.	—	30 4or5%	1+	7*
Vetch bruchid	—	—	30 4or5%	1+	7*
Grasshoppers	1 1/2-2 pts.	—	—	1+	7*

Do not apply to alfalfa in bloom. \*No application within 7 days of harvest or pasturing.

### Clover

Aphids Mites	1 1/2-2 pts.	—	25-35 4or5%	1+	7*
Young grasshoppers Leafhoppers	1 1/2-2 pts.	—	—	1+	7*

Do not apply to clover in bloom. \*No application within 7 days of harvest or pasturing.

*pull up—keep for handy reference*

# 1957 MALATHION Growers' Guide

## FLIES

FOR USE IN AND AROUND BUILDINGS WHICH HOUSE DOMESTIC ANIMALS, AROUND YARDS, AROUND HOMES, AND AROUND MEAT PROCESSING ESTABLISHMENTS

### Straight Malathion Sprays

Amount Spray	Amount Emulsifiable Liquid	Amount 25% Wettable Powder
2½ gals.	1 cup	1 lb.
12 gals.	1 qt.	5 lbs.
100 gals.	2 gals.	40 lbs.

### FOR BAIT SPRAYS (WITH SUGAR)

Add to Mixture		
Sugar	or	Molasses* or Corn Syrup
1 cup		1 cup
2½ lbs.		1 qt.
20 lbs.		2 gals.

\*Use unsulfurized molasses

Apply the spray at the rate of one gallon per 1,000 square feet on painted surfaces and two gallons per 1,000 square feet on unpainted surfaces where flies alight or congregate. Use 3 gallons of malathion Emulsifiable Liquid or 40 lbs. of 25% Wettable Powder with 40 lbs. of sugar per 100 gallons if fly population is severe. In most cases, adding molasses or sugar to the spray prolongs the insecticidal activity of malathion and serves as a fly attractant. Do not use in milk rooms. Avoid contamination of feed and food products. Remove animals and poultry from buildings before treating. Do not use in dwellings. Do not leave within reach of children. Do not use in rooms where edible products are handled.

## You get all these advantages with malathion



**HIGH RESIDUE TOLERANCE**—Under the "Miller Bill" (Public Law 518) malathion has been granted a residue tolerance of 8 parts per million. This means that 8 p.p.m. or less by weight of actual malathion can be present in or on crops for which a tolerance has been established. Malathion residues disappear rapidly. That's why the longest waiting period between last application and harvest is 7 days . . . and for many major fruit and vegetable crops the waiting period is only 72 hours.

**LOW TOXICITY**—Malathion is high in toxicity to insects but low in toxicity to mammals. The precautions to be followed for its safe handling are similar to those required for DDT. These instructions will be found on every package of malathion insecticides.

**COMPATIBILITY**—When mixed in the spray tank, malathion is compatible with aldrin, DDT, lead arsenate, methoxychlor, mineral oil, parathion, TDE, dieleldrin, ferbam, glyodin, captan, chlordane, karathane, tribasic copper sulfate, sulfur, toxaphene, zineb, ziram, other organic phosphates. When alkaline insecticides and fungicides are added to the spray tank with malathion formulations, the residual activity of the malathion may be decreased.



### PROTECTION FOR FRUIT

**FINISH**—Many fine finish programs specify malathion because it offers a wide margin of safety to fruit and foliage of sensitive varieties.



**FORMULATIONS**—American Cyanamid produces and sells only technical malathion. Many well-known manufacturers use this technical material to make and sell, under their own brand names, emulsifiable liquids containing four or five pounds of malathion per gallon; wettable powders containing 25% malathion; and dusts of 4% and 5% malathion.

**WANT MORE COPIES** of this Grower's Guide? Write to address below.

AMERICAN CYANAMID COMPANY,  
NITROGEN AND ALLIED PRODUCTS DIVISION, DEPT. N  
30 ROCKEFELLER PLAZA, N. Y. 20, N. Y.

**CYANAMID**

reference

uide

rate of one gallon on painted surfaces where flies are 3 gallons of liquid or 40 lbs. per with 40 lbs. of fly population is adding molasses along the insecticide and serves not use in milk ration of feed and the animals and before treating. Do not leave Do not use in fruits are handled.

athion

**OR FRUIT**  
finish programs use it offers a to fruit and foliage.



**S** — American sells only technically well-known technical materials under their own trade liquids compounds of malathion powders containing dusts of 4%

of this Grower's below.

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Growers in Mississippi grow their own plants. Seeds are planted in manure-heated hotbeds, and transplanted to unheated cold frames, or seeded directly to the unheated cold frames.

## Growing Tomatoes in the DEEP SOUTH

Mississippi caters to green mature trade

By STEVE L. WINDHAM  
Mississippi Truck Crops Experiment Station

TOMATOES have been grown for the mature green trade for about 75 years in the Copiah County area of Mississippi. The production now is small compared to the 1930's, but if the past two years are any indication of the future, it is on the upswing.

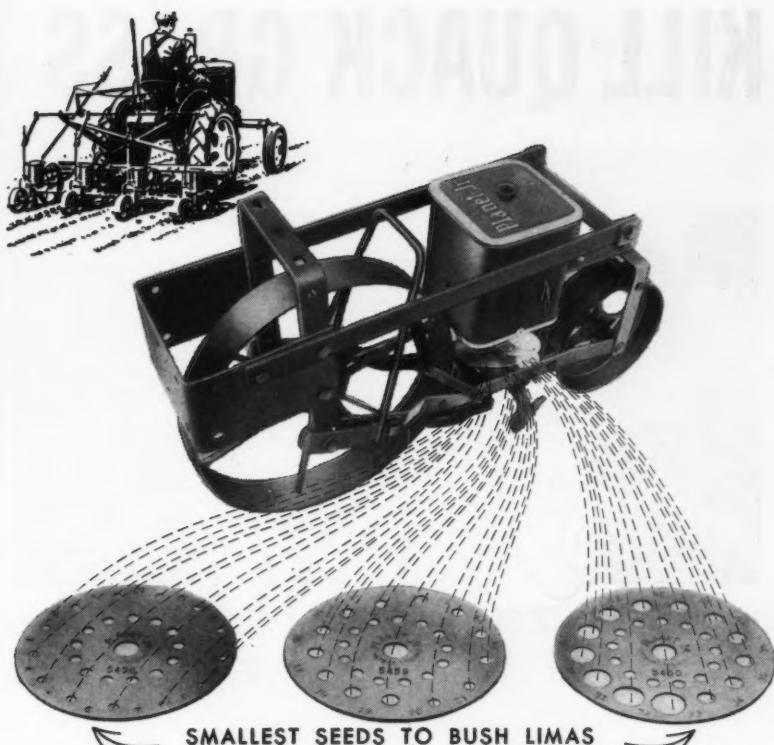
Labor shortage and cost of production have limited the size of operation. Most growers put in a crop that can be handled by the available labor on the farm. Rarely does the planting exceed 7 to 10 acres, while many growers plant only 1 to 2 acres. The small size of these operations limits the investment that growers can profitably make in spray equipment and other mechanical equipment, but enables them to follow better cultural and harvesting practices which result in a better-quality product.

The variety planted varies from farm to farm, but the Rutgers variety is used to the greatest extent. Some growers plant Kopiah and Kokomo, and several are trying the better hybrids.

### Plants Are Locally Grown

All plants are locally grown as the result of an embargo placed on out-  
(Continued on page 34)

MARCH, 1957



## Planet Jr.<sup>®</sup> SEEDER UNIT NO. 9192X

... handles over 39 different size seeds  
... with accuracy!

This Planet Jr. Seeder Unit is furnished with three seed plates... giving a selection of 39 hole sizes for planting any size seed from the smallest vegetables to bush limas. It row-plants accurately a prescribed number of seeds per foot. The No. 9192X, like all Planet Jr. seeder units, is easy to clean, easy to fill, and is built for quick changing of seed plates. It is especially adaptable for use with most general purpose tractors. There is a complete line of Planet Jr. "packaged" seeding attachments available.

### Here are the extras available for Planet Jr. No. 9192X

**PRESS WHEELS**—a wide number of press wheels to choose from—flat, concave, split, open-center and rubber-tired.

**DRIVE WHEELS**—choose from flat, flanged and furrow-flanged drive wheels—whichever suits your soil conditions best.

**STANDARD**—there is a wide variety available for mounting 9192X seeder to your tool bar—either front, rear or side-offset.

**OPENING PLOWS**—a large selection with planting range from 0 to 3½ inches in depth—from 1 to 6 inches in width of furrow.

... finest in the field  
for over 85 years



WRITE FOR DETAILS TODAY!

S. L. ALLEN & CO., Inc.  
3419 N. 5th Street, Phila. 40, Pa.

Please send me complete details on Planet Jr. 9192X Seeder Unit

Name.....  
Address.....  
City..... Zone..... State.....

# KILL QUACK GRASS



MH  
with

Quack grass is licked! Now MH not only reduces quack grass growth, but also eliminates this nuisance, in areas devoted to high-value crops. MH is so safe that seeds of vegetable and field crops can be planted on treated areas as soon as plowing and preparing the soil are completed. No soil toxicity.

Order MH from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.



**United States Rubber**

**Naugatuck Chemical Division**

**Naugatuck, Connecticut**

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synclor, MH, Alanap, Duraset.

## DEEP SOUTH

(Continued from page 33)

of-state tomato plants by the State Plant Board at the request of the growers. This is a preventive measure against late blight which for several years completely ruined the crop.

Seeds are planted in manure-heated hotbeds and transplanted to unheated cold frames, or seeded directly to the unheated cold frames. They are planted in January so that they may be transplanted to the field during the last 10 days of March.

The amount of fertilizer used in this area varies from 1200 to 2000 pounds per acre of the equivalent of 5-10-5 fertilizer. Most growers use approximately 1500 pounds applied in a band in the center of the row about two to three weeks prior to transplanting. An additional 32 pounds of nitrogen is applied as a side-dressing at about the time the first cluster of fruit is set. Some growers use the above mixed fertilizer as a side-dressing at the rate of 300 to 500 pounds per acre.

Most of the plants are transplanted to the field by hand. A few of the larger growers use one- and two-row transplanters. Spacing distance depends upon whether the crop is to be trained. If the plants are to be staked, tied, and pruned, the plants are placed 2 feet apart on 3½- or 4-foot rows. Growers who allow their plants to grow untrained space plants 2 feet apart on 7-foot rows.

### Staking and Pruning

Where the plants are trained, the number of times the plants are pruned and tied will vary on different farms. The common practice is to remove all prunes from the plant below the first two clusters with the exception of the prune just below the first cluster. One cluster of fruit is

(Continued on page 37)



Irrigating a staked tomato field in Mississippi.

AMERICAN VEGETABLE GROWER

## SOUTH

from page 33)

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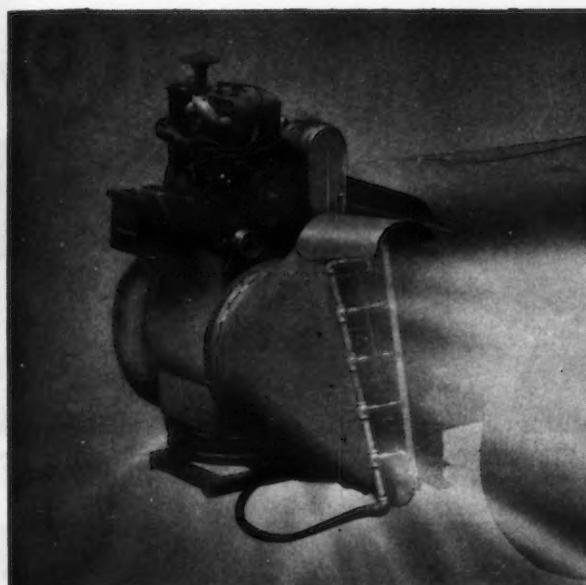
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VEGETABLE GROWER



## NEW, MODERN ROW-CROP SPRAYING

for **EVERY** grower!

### with the John BEAN 8-RC AIRCROP ATTACHMENT

Now, by using this new and economical John Bean air attachment, any grower with average acreage can afford the top-notch crop protection of modern air spraying. The tractor driver, as a one-man crew, will spray swaths from 30 to 40 feet wide, 25 to 30 acres per day, and do it with very few water hauling trips. He can also spray dilute, semi-concentrate or concentrates — the Aircrop handles them all!

No longer is there a need for maneuvering an unwieldy spray boom over rolling ground, around obstacles in fields and through narrow gates. The Aircrop sprays wherever the tractor takes it — sprays to either side to take ad-

vantage of wind direction. Full 180° rotation is provided.

Straight-through air delivery from a powerful 21-inch axial flow fan is engineered for maximum controlled performance. Spray outlet is tapered at the bottom to protect nearby rows.

For spraying the rows straddled by the sprayer there's a four nozzle boom. And note this — adjustable vanes and deflectors not only adapt the Aircrop 8-RC to the particular field conditions, they quickly convert the unit to an efficient orchard sprayer. Ask your John Bean dealer for a demonstration.

There's a John Bean high-pressure, boom type sprayer for every purpose.



6 to 14 row models

All new HI-CROP with 6-ft. clearance for tall corn, adjustable boom heights for any row crop.



Write for John Bean  
Catalog L-1144 and  
L-1120 today!

### BIG CAPACITY 15-RC AIRCROP SPRAYS 60 FT. SWATH, UP TO 24 ACRES PER HOUR...

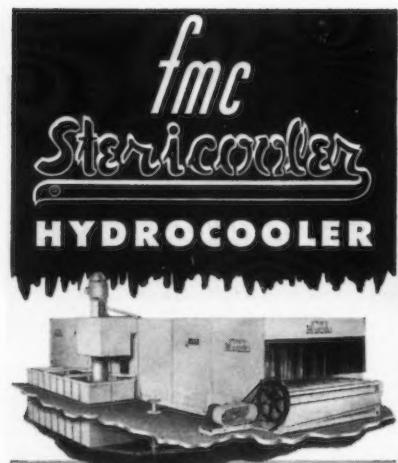
Here's large scale crop protection at costs that make any other type of spraying expensive by comparison. See your John Bean dealer for complete information.



**John BEAN**

Division of Food Machinery and Chemical Corporation

LANSING 4, MICHIGAN  
SAN JOSE, CALIFORNIA



FOR IMPROVED  
HYDROCOOLING OF:

SWEET CORN — CARROTS  
CELERY — ASPARAGUS — BEANS  
RADISHES — PEAS — CAULIFLOWER  
SPINACH — LETTUCE  
GREEN ONIONS — AVOCADOS  
EGGPLANT — CHERRIES — BERRIES  
PEACHES — APRICOTS  
CANTALOUPE — APPLES  
BROCCOLI

**The 1957  
Hydrocooling Unit  
...Proved and  
Improved over  
15 years!**

Today, hydrocooling is the recognized method of increasing the saleable life of fruits and produce from grower to market. In this field of hydrocooling, the FMC Stericooler stands as the undisputed leader. An FMC Stericooler installed in your plant is on the job constantly to retard decay — cut trimming losses — protect produce from transit decay — deliver produce garden fresh and fruits tree ripened. Get the new 1957 FMC Stericooler hydrocooler! Compact metal construction... increased cooling capacity... new low price... and available in 5 capacities!



MAIL COUPON  
TODAY

**FLORIDA DIVISION**

FOOD MACHINERY AND CHEMICAL CORP.  
P. O. Box 1718, Lakeland, Florida

Gentlemen: Kindly send me more information  
on the new STERICOOLOER.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

RFD NO. \_\_\_\_\_

SC-4B

## PICK TOMATOES

This Way . . .



Tomato picking is easy when done correctly. Exert a steady pull as you tip tomato sidewise with thumb and twist it in a spinning motion.

NOT This Way



Do not pull the tomato straight out from the main stem! This breaks stem, injures plant, and destroys all the tomatoes on that branch.



Always use both hands when picking. Shift first two tomatoes you pick back into palms of hands.



Never lift tomato up and away from main stem. Tomatoes may be damaged and branches broken.



Then pick a second tomato in each hand. Get both hands full before putting any tomatoes in basket. It increases efficiency and profits.



Don't pick with only one hand. If you do, Purdue University says you'll pick only 83 hamper in the time in which you should pick 100.



Keep arm and back straight when carrying filled basket. Lift with strong leg muscles. A wire handle with handpiece makes basket easier to move.



Don't move hamper by gripping edge of it with fingers, and don't carry hamper to road with arms bent and hamper held out in front of you.

*Tomato closeups, courtesy Otis H. Green, USDA, and University of Maryland.  
Photos with baskets by J. C. Allen and Son.*

## DEEP SOUTH

(Continued from page 34)

his Way



straight out from the stem, injures plant, leaves on that branch.



away from main stem and branches broken.



one hand. If you do, you'll pick only 83 hands. If you should pick 100,



ripping edge of it with hamper to road with held out in front of you.

of Maryland.

VEGETABLE GROWER

allowed to set on this lateral. The plants are tied to the stakes twice with short pieces of jute twine.

Training plants is an expensive procedure, but most growers feel that increased early yields from more plants per acre, plus the reduction in fruit rots in rainy weather from the fruits touching the ground, makes this a paying proposition.

Cultivation is practiced often enough to keep weeds and grass down. Tractor equipment is used primarily during the earlier part of the season, but many growers of staked tomatoes rely entirely on mule- or horse-drawn equipment after the plants are staked.

In recent years most of the growers used various combinations of insecticides and fungicides in sprays for controlling diseases and insects. Dust materials are used only when a spray rig is not available, as dusts fail to control fruit and leaf diseases as effectively in this area as sprays. This is one of the weakest links in the chain of tomato growing in this area, as the small acreage does not lend itself to purchasing expensive spray equipment, nor is the area adapted for custom spraying.

### Harvest Every Three Days

Harvesting begins in early June and extends to about the middle of July. Harvesting is done when some of the fruit shows a tinge of color on the blossom end and the fruit can be sliced with a knife with no seed being cut. To insure the right stage of maturity, growers harvest their crop approximately every three days.

The fruit is placed in suitable containers and trucked from the farm to the local market where all lots are inspected for maturity by state-federal inspectors. The percentage of number 1's, 2's, and culls are determined at the same time.

The grower then takes his tomatoes to an area where local vegetable buyers and representatives of various repack houses bid on each individual load.

THE END.

### U.S. IMPORTS OF FRESH TOMATOES

1946 and 1951-55  
(From USDA)

Country of Origin	Year Beginning October 1					
	—1000 bushels—					
Cuba	1946	1951	1952	1953	1954	1955
Cuba	467	326	279	271	191	552
Mexico	4,439	3,249	3,624	2,668	1,374	1,057
Total all Countries	1,433	3,672	4,064	3,024	1,605	1,533
11 months	October through August					

### IMPORT DUTIES ON FRESH TOMATOES

(From USDA)

2.1c per lb. March 1-July 14; Sept. 1-Nov. 14.
1.8c per lb. March 1-July 14; Sept. 1-Nov. 14, Cuba only.
1.5c per lb. July 15-Aug. 31; Nov. 15-End of Feb.
1.2c per lb. July 15-Aug. 31; Nov. 15-End of Feb., Cuba only.

MARCH, 1957

## Build Yield-Power equal to more acres

### SWIFT'S PLANT FOODS BRING MORE CASH INCOME PER ACRE

Build your income by building the Yield-Power of your soil—make each acre produce extra dollars. It's more profitable than planting more acres in high-value crops.

Use Swift's Specialized Crop Makers—**Vigoro Commercial Grower**, **Blenn** or **Brimm**—if you want the absolute peak in yield and quality. They contain extra growth elements especially needed by fruits and vegetables for top quality as well as yield. **Red Steer**, too, is the choice of thousands of leading market growers.

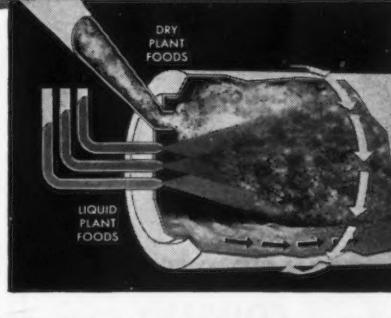
Swift's plant foods are made by the exclusive new **FLO-FUSION** process which packs each particle with fertility—assures balanced feeding of your crop. They are made in plants located in your area, so they can be tailored to local soil and crop needs.

The high market value of your crop—quality as well as yield—demands special care. This year build Yield-Power equal to more acres of good land—use the latest and best plant foods.



### Swift's new FLO-FUSION process packs each particle of plant food with supercharged Yield-Power

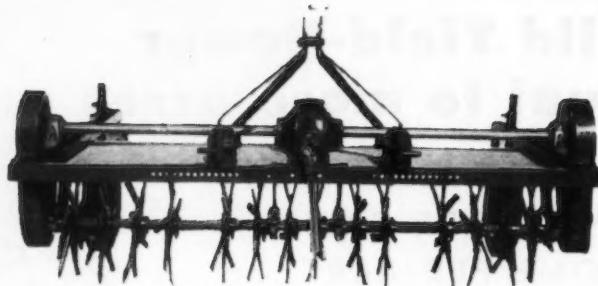
High-quality liquid plant foods are injected into dry materials in a revolving **FLO-FUSION** processing chamber at Swift's Plants. Millions of individual chemical reactions convert raw materials into chemically-hitched plant food, drying the particles as they are formed. You get the benefit of this **FLO-FUSION** process only at Swift Plants throughout the nation.



PLANT FOOD DIVISION • CHICAGO 9, ILLINOIS



To Serve Your Farm and Family Better



## Power Driven Rotary Cultivator

2-Row Model

To be used on large or small farms. Increases crop yields, makes crops healthier and in turn keeps your soil rich and full of humus.

This implement is built of the best materials, with best workmanship. The fingers are adjustable to different width rows. The implement measures 7 feet 8 inches long and weighs approximately 800 pounds.

The tool you have been hearing so much about. The tool that saves you time and boosts your crop yield.

Dealers Wanted

**McClenney Farm Machinery Co.**

P.O. Box 388

Suffolk, Va.

## STOKES CROSS No. 6

A new F<sub>2</sub> tomato with rare qualifications:

- Crack resistance
- Fusarium resistance
- No yellow top
- Unusual flavor
- Heavy yielding

Seed available now. 1 oz. \$1.50.  
1 lb. \$8.40.

Plants available May 1st. \$6.50  
per 1000, F.O.B. Georgia shipping point.

**FRANCIS C. STOKES  
COMPANY**

Pioneer in Better Tomatoes  
VINCENTOWN, NEW JERSEY



### THE NEW CHAMPION JUICER

Is The Sunshine to Better Health

Three in one, for the price of one. JUICES ALL: Leafy and root vegetables—Carrots, celery, spinach, endive, parsley, etc.

A VEGETABLE GRATER: In seconds you can grate beets, turnips, carrots, coconuts, and nuts for tasty salads, spreads, etc.

AS A HOMOGENIZER: It is outstanding for nut butter sherbets from frozen fruits, purees, baby foods, homogenizes vegetables.

NO nuts, bolts or screws needed to assemble or disassemble, very easy to clean.

Price completely equipped with 1/2 H.P. G.E. special built motor, 60 cycle 115 V; 5 year service guarantee; instruction book with recipes including the three in one feature for only \$160. F.O.B. factory.

WRITE TO:

**W. R. Laboratories, Dept. V. G.**  
639 E. Lockeford St., Lodi, Calif.

## BEAT THE MARKET

(Continued from page 15)

Michigan. Many of the earliest tomatoes with high quality are hybrids.

3) Use sterilized soil, flats, pots, and bands for plant growing.

4) Give the plants the cold treatment.\* After the seed leaves unfold, grow the plants for three weeks at night temperatures of 50° to 55° F. This will save on fuel as well as double flower numbers and fruit yields on the first clusters. Cold-treated plants flower nearer the ground level, are sturdier, have stronger sideshoots, and have a better chance of survival when transplanted to the field than those grown continuously at 60° to 65° F.

More early flowers will also be formed if tomato plants are sprayed near the end of the cold treatment with N-m-tolylphthalamic acid (Duraset—20W).

### Spacing of Seedlings

5) Seedlings may be pricked-out before, during, or after the cold treatment and transplanted to flats, pots, or bands. The plant container is not important, but the space between plants is. Allow at least 16 to 20 square inches per plant in the greenhouse, hotbed, or coldframe.

6) Every week or 10 days water plants with an all-soluble fertilizer solution high in phosphate. One-half to one ounce per gallon of water of a 50-50 mixture of di-ammonium and mono-potassium phosphates\*\* makes an ideal fertilizer for tomatoes.

7) Ten days to two weeks before field transplanting, harden the plants. Withhold water as much as possible. Transfer to a coldframe where the plants will be exposed to wind, sun, and a lower temperature. Leaves should turn a dark green color with some bronzing.

Before transplanting, spray or dust for control of insects and diseases. A single application of DDT before setting out usually prevents injury from flea beetles.

8) If possible, plant in a well-drained, productive, sandy loam soil not used for tomatoes the previous year. Fertility levels should be built up and maintained. Yearly applications of 20 tons of manure plus 100 pounds of superphosphate per ton of manure, or a ton of 5-20-20 fertilizer per acre are suggested. Additional

\* For details of the "cold" and "chemical" treatments for more flowers in tomato plants, see AMERICAN VEGETABLE GROWER, April, 1956; and article 39-18 of the Michigan Agricultural Experiment Station Quarterly Bulletin, entitled, "New Practices for Increasing the Fruit Crop of Greenhouse-grown Tomatoes."

\*\* Commercially available as "Take-Hold" (Victor Chemical Works) and having a guaranteed analysis of 10-52-17.

the earliest tomatoes are hybrids, soil, flats, pots, growing.

the cold treatment leaves unfold, three weeks at 50° to 55° F. as well as roots and fruit clusters. Cold air nearer the ground, however, have a better chance when transplanting those grown at 65° F.

will also be treated. Plants are sprayed with cold treatment with 10% acid (Dursan).

be pricked-out in the cold treatment flats, pots, container is not too much space between plants, at least 16 to 20 inches in the greenhouse frame.

10 days water soluble fertilizer at 1/2 rate. One-half pint of water of a 10% ammonium and nitrates\*\* makes good tomatoes.

4 weeks before setting the plants. As much as possible. Come where the plants are exposed to wind, sun, and temperature. Leaves should be green color with

no spray or dust and diseases. A 10% DDT before setting to prevent injury from

plant in a well-drained, sandy loam soil. In the previous week, a trench should be built and early application of manure plus 100 pounds of 10-20-10 fertilizer per ton of soil. Additional

\*\* "chemical" treatment of tomato plants, see April, 1956; and "Agricultural Experiment Station," entitled, "New Crop of Green-

Take-Hold" (Victor) guaranteed analysis.

TABLE GROWER

fertilizer can be applied to the crop by top-dressing, or in the irrigation water.

9) Field transplanting should be done two to four weeks before the frost-free date. Flowers on the first cluster should be opening. This will insure some fruit on the first cluster even in cold weather.

Use a starter solution (3 to 5 pounds per 50 gallons of water of an all-soluble fertilizer high in phosphate) at transplanting. Pour one pint around the roots of each plant. Thorough watering with the same fertilizer solution an hour or so before transplanting is also recommended. At transplanting keep the ball of soil around the roots.

10) Protect the plants against wind and frost. Set in a furrow or against a ridge for wind shelter. Cover with super hottents, plastic bonnets, or continuous row hottents.

11) Facilities for overhead irrigation may mean the difference between success and failure, both for frost protection and in supplying needed moisture during dry periods. By running a sprinkling system continuously as long as temperatures are at freezing or below, and continuing until all ice has melted from the plants, protection against temperatures as low as 22° F. is possible.

12) Insure early fruit set by spraying the first flower clusters with a fruit setting chemical if night temperatures fall below 60° F.

Night temperatures are so important for setting tomato fruit that the first big volume of local tomatoes, and the date the price breaks, can be predicted by knowing when night temperatures become favorable for fruit setting. Fruit will ripen 48 to 50 days after sustained periods (three days or longer) of 59° to 68° F. night temperatures, or 48 to 50 days following the use of a fruit setting spray on the open flowers. THE END.



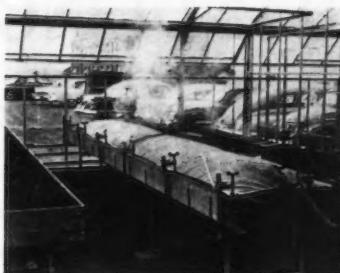
If night temperatures fall below 60° F., a growth regulating spray should be applied to fruit clusters after the majority of their flowers have opened. It should be directed down and at the clusters and away from the growing tip and leaves. Note large flower cluster. Hand sprayer is made by Milwaukee Sprayer Mfg. Co., Inc.

MARCH, 1957

# N O W

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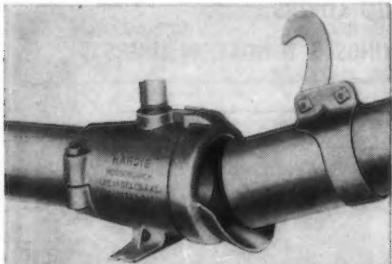
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40



Dumping may speed handling but the end result is an unsalable tomato.

# HANDLING TOMATOES the *Quality* way

**Careful handling and proper ripening will keep the quality in your mature-green tomatoes**

By LACY P. McCOLLOCH

*U. S. Department of Agriculture*

THE quality of fresh tomatoes ripened from mature-green stock can be improved if certain important requirements are met.

The industry has succeeded quite well in developing the mechanics for handling and ripening tomatoes on a volume basis, but there is need for changing certain practices if we are to improve quality.

### Flavor Important

The consumer wants a sound, firm, red tomato with good flavor. It is fully realized that the tomato shipped mature-green and ripened later will not have the flavor of a vine-ripened tomato. It is also recognized that a truly vine-ripened tomato cannot stand the handling necessary to put it on the consumer's table. Perhaps harvesting tomatoes in the "pink" stage would provide better flavor than harvesting them mature green.

Although there is considerable interest in shipping pink tomatoes, it is not expected that this method of shipment will replace more than a small percentage of the mature-green shipments in the immediate future. If shipment of pink tomatoes is to succeed, there is need for much improvement in handling practices and for research on the entire problem.

We know, however, that the mature-green tomato can be ripened

successfully and its quality can be greatly improved. The basic factors for obtaining flavor and quality in tomatoes harvested at the mature-green stage are: healthy, firm tomatoes grown under proper conditions; proper maturity when harvested; careful handling to avoid mechanical injuries; prompt transit at moderate temperatures (55° to 65° F.); prompt ripening at about 65°; and proper ripening to obtain the desired red color and flavor.

Tomatoes must have mature seeds and jelly in the seed cavities at harvest to provide flavor and quality in the ripened product. Immature tomatoes are often poorly formed, lack the natural protective wax of the skin, and are slow to ripen. They usually are mealy and lacking flavor because of the long period of ripening, or shrivel and become poorly colored and tough.

I am convinced that most of the immature tomatoes now marketed can be eliminated, but it would require some sort of an incentive since the tomatoes will have to be harvested more often and the picking supervised more closely than at present.

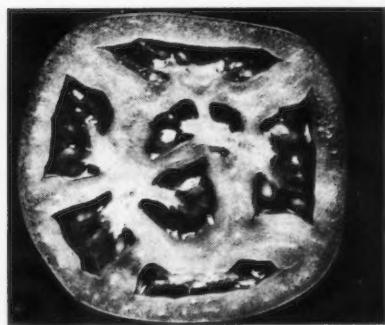
### Careful Handling Stressed

Careful handling to avoid mechanical injuries cannot be over-emphasized. Because green tomatoes can withstand considerable handling, they are too often dumped, rolled, or even tossed during the numerous handlings

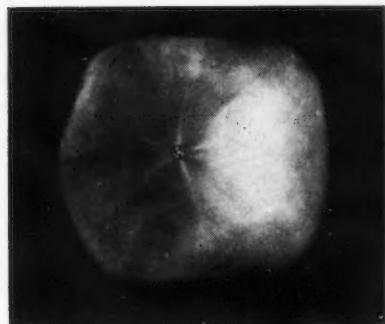
between the tomato field and the table.

These injuries are cumulative in the fruit and are a second major cause of poor quality. Injuries such as scuffing, box rubbing, crushing, and other skin breaks either develop decay or turn dark and make for an unattractive appearance. Pressure-bruised tomatoes are less likely to decay and, except for those more seriously damaged, the injury is hidden until the tomato is cut.

If tomatoes are bruised during the early stages of ripening, the jelly fails to develop in the damaged seed cavities and becomes dry. This impairs the flavor, since tomato flavor is largely imparted from the normally developed jelly in the seed cavities. In more serious cases of bruising,



Bruised tomato. Damaged seed cavities fail to develop jelly substance that imparts flavor.



Pressure bruising. Careful handling, packaging, and retail display will eliminate this.

where the tissues are crushed, off-flavors frequently develop.

#### Storage Temperatures

If it is to develop quality, the mature-green tomato must be held at all times at temperatures that promote ripening. Holding at temperatures that delay ripening before shipping, during transit, or after reaching the market may increase the decay during subsequent ripening.

Tomatoes are subject to chilling injury if held for sufficient time below 50° F. Tomatoes seriously injured by

(Continued on page 42)

DOES

quality can be basic factors in quality in to-mature-green form tomatoes conditions; harvested; and mechanical at moderate 65° F.; but 65°; and in the desired

mature seeds lies at harvest quality in the sure tomatoes ed, lack the of the skin. They usually flavor because ripening, or y colored and

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## HANDLING TOMATOES

(Continued from page 41)

low temperature are slow to ripen, develop poor color, are soft and watery, and develop an abnormal amount of decay in the ripening room. Alternaria rot predominates, and the amount varies in direct proportion to the injury.

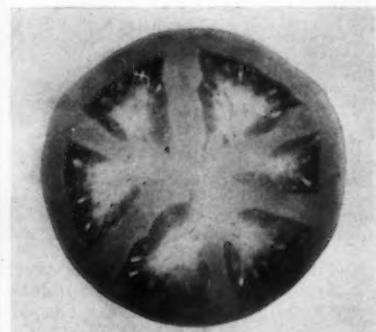
High transit temperatures, especially following rains and skin breaks, may promote watery rot, rhizopus rot, or bacterial soft rot, and temperatures in the 80's cause yellowing of the fruits.

Proper ripening requires prompt sorting and careful handling to avoid bruising, care that boxes are not over-filled, and that the tomatoes are ripened promptly at a temperature of 60° to 70° F. Some ventilation should be provided so that carbon dioxide does not accumulate nor oxygen become depleted.

A very important point in proper ripening is that the tomatoes should be adequately ripened before they



Mature-green tomato. Seeds are resistant to cutting, "jelly" has developed in seed cavities.



Immature-green tomato. Soft white seeds are easily cut, jelly is lacking in seed cavities.

are placed in retail channels. Tomatoes of good quality that are completely colored, but not eating ripe will remain firm and improve in flavor during three days at 65° to 70° F. If packaged, tomatoes should be provided with ventilation. THE END.

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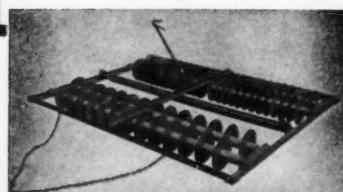
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ABLE GROWER

## PINK TOMATOES

(Continued from page 14)

overlap. For the fall planting, seeding starts as early as July, and for the spring, seeding is started in December. Planting is done both by direct seeding and transplanting from seedbeds. About 70% of the crop is seeded directly in the field. On old, weed-infested land transplanting from seedbeds is the common practice. Both methods have advantages; direct seeding usually assures a week or two earlier maturity.

It is estimated that the Florida tomato crop in 1957 will exceed 70,000 acres. The acreage devoted to the production of vine-ripened, although increasing, is still only a fraction of the total acreage, less than 1000 acres in 1956, but more than 1500 acres in 1957. During the 1956 season 7% (about 950,000 bushels) of the tomatoes shipped were vine-ripened. Many competent observers, growers, and shippers predict that the vine-ripened tomato deal will dominate Florida production in five years.

### Two Suitable Varieties

Apparently only two varieties are suitable for vine-ripening under Florida conditions. About 70% of the acreage is planted to Manalucie, the remainder to Jefferson.

In producing this large and valuable crop, Florida growers overcome hazards probably unmatched in any other part of the country. These hazards are multiplied in the production of ripe tomatoes because of the extended harvesting period necessary to realize the highest possible yields. As a result, production costs, not including harvesting and processing, range from \$600 to \$1000 per acre for staked crops. Only the fact that tomatoes bring a premium price in the winter and spring markets makes growing the crop profitable.

Frequent rains during August and September and periods of heavy dews, fogs, and light showers in the normal winter season in peninsular Florida are especially favorable for the development and spread of diseases. Similarly, since mild winters are favorable for insect activity, these pests often become serious threats to crops. Hence a large portion of the production cost of growing a tomato crop is accounted for in the cost of equipment, pesticides, and the labor needed to control these pests.

There are a number of factors involved in the production of the tomatoes for green-mature harvest that must be modified in order to fit into the production of vine-ripened fruit. Generally speaking, cultural practices

(Continued on page 45)

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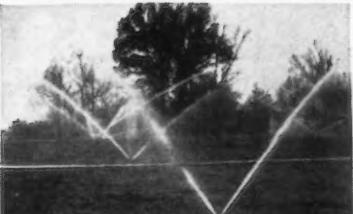
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Two-fifths of an acre of greenhouse being moved. Three tow-trucks, a tractor, and power winches were used by Rough Brothers, greenhouse builders, of Columbia Station, Ohio, to do the job.



Photos by Ray Matasic, Cleveland Plain Dealer  
Paul Ruetenik (left) is shown standing on the first 30-foot strip of soil to be exposed by the experimental "mobile" greenhouse. This tired old plot will take a sunbath for a year or so.

## MOBILE GREENHOUSE

ROLLING a huge greenhouse to fresh soil probably never happened before but Paul B. Ruetenik, of Vermilion, Ohio, is willing to bet a solid investment that his experiment works out satisfactorily. This past fall he moved one section of his 3½-acre greenhouse plant to new land on Ruetenik Gardens. If his idea pays off, he plans eventually to mount all of his greenhouses on rollers and shuttle them to fresh soil as the need arises.

His wandering greenhouse weighs an estimated 75,000 pounds plus 25,000 pounds in steam pipes, and measures 90 x 200 feet.

Greenhouse soil, no matter how well fertilized and sterilized, wears out in time. The soil on which his greenhouse was located yielded 43 consecutive crops in 23 years.

"New greenhouse soil today is producing 20,000 baskets or more per acre of tomatoes a season," said



Roger Ruetenik points to one of the roller bearings that carried the pipe supports on which the greenhouse rode to its new location.

Ruetenik. "Old ground yields 10,000 to 12,000 baskets."

"At \$2 a basket, if you can add 5000 baskets, it pays to try," says Ruetenik.

THE END.

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Portable 2-XB model sells for \$133.50 less belt guard and engine; or \$189.50 complete with Briggs and Stratton 2 1/2 h.p. recoil starter engine (electric motor available) f.o.b. Wichita. Also larger models. Write for literature and name of user near you.

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**W-W GRINDER CORP.**

Dept. VG Wichita 4, Kansas

MARCH, 1957

## PINK TOMATOES

(Continued from page 43)

such as the preparation of land and soil conditioning, provisions for drainage and irrigation, basic nutritional requirements under similar conditions, and pest control are the same for green-mature and vine-ripe harvest.

### Staking and Trellising

Staked or trellised tomatoes have many advantages over ground-grown plantings. Larger per-acre yields are a rule because closer row and plant spacings result in an increase in the number of plants per acre. The extended harvesting period made possible by this type of culture adds additional bushels per acre to yields.

Trellising has all of the advantages of staking plus the reduction of fruit losses caused by stake rub and careless tying.

Plants that are staked or trellised are usually pruned to a single or double stem. Usually three or four ties are required to keep staked plants secure. The trellised plants are kept in place by simply twisting a pre-fixed twine around the plant as growth progresses. Rows are spaced from 48 to 54 inches, and plants are spaced from 10 to 18 inches in the row.

The amount of fertilizer applied to a crop on an acre basis varies with conditions and locations. The common practice usually requires about 3000 pounds per acre or equivalent of a 4-8-6 formulation, averaging about 20% organic nitrogen. Under some circumstances total applications as high as 3 tons per acre are not uncommon, and returns in increased yields and fruit size seem to warrant the extra applications.

### High Yields

From this generous use of fertilizer come startling yields, considering the nature of soils upon which the tomatoes are grown and the time of the year with short days and cold nights. The yield of vine-ripened fruits per acre for staked or trellised tomatoes is often 600 bushels, or better than 30 tons per acre. Yields of 300- and 400-bushel crops are common.

To assure arrival in the best possible condition on the market, vine-ripened tomatoes are picked as soon as fruits show the first color at the blossom-end. By the time they reach the markets two to four days after packing, most of them are fully colored and afford the consumers almost garden-fresh quality. This system eliminates the need for the costly storage period in ripening rooms required by green-mature fruit. THE END.



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Green or  
vine ripened 68

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Peppers 68

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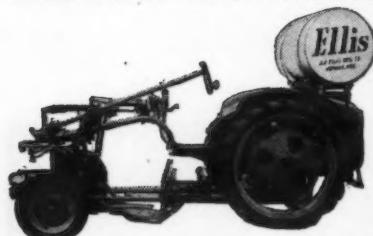
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Automatic and Conventional Types

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## VARIETIES

(Continued from page 13)

released in the spring of 1956. Fruit is round to oblate, medium size, smooth on shoulder and blossom ends, dark green in green-wrap stage, but attractive red when ripe. Not inclined to pumice, it matures about the same time as Rutgers. It has a high degree of resistance to fusarium wilt, and color is not a phase of early blight. Fruit is more subject to radial cracking and blossom end rot than Rutgers. This variety does best in south central, central and east Texas. It is not adapted to the Lower Rio Grande Valley or the winter garden area of Texas.

### Midwest Varieties

Considerable research is being done in the Midwest on developing greenhouse and field varieties for early plantings. Several new hybrids will be made available soon by the Purdue University Agricultural Experiment Station and others.

### Valiant (70)

Fruit is rather small, bright scarlet, with oblate shape, solid flesh, and excellent flavor. Vines are large indeterminate, open and spreading, foliage sparse, with inadequate covering for late summer crops. It is only used as an early variety and in short season areas.

### Fireball (70)

Recently released by Joseph Harris Company, Inc., this is one of the earliest varieties with spod-sized fruit, extra early maturing on dwarf vines. Fruit is round and smooth, and of good size.

### Urbana (75)

Developed by Dr. Walter Hudson of the Illinois Agricultural Experiment Station. Ten days to two weeks earlier than Rutgers, fruit is deep red, of medium size, smooth globular, with small core and firm flesh. Vines are determinate, low spreading with large leaves, very prolific and rapid maturing. It needs an abundance of plant food and water to produce maximum yields and fruit size.

### Purdue 1361 (75)

A main crop red-fleshed tomato of excellent quality, vines are heavy and of indeterminate type. Fruit is large and somewhat flattened, similar to Baltimore. An exceedingly heavy yielder of smooth, high-quality fruit, it is ten days earlier than Rutgers.

### Rutgers-Pritchard F<sub>2</sub> (75)

This second generation cross has plant and fruit characteristics similar to Rutgers, but is 10 days earlier. Yields average 15% greater than Rutgers. Fruit is red, globular, of excellent quality and size, with less cracking than Rutgers. It is one of outstanding F<sub>2</sub> crosses for early market and processing.

### Rutgers (80)

This is one of the outstanding canning varieties in Ohio-Indiana as well as the Tri-State area, vines are heavy, vigorous and bushy, with coarse foliage; it is a heavy producer. Fruit is deep red, medium size oblate, and very solid with firm, mild flavor, but it cracks badly under a bad growing season. Late maturing, it is widely adapted and used extensively for green-wraps and processing.

### Kokomo (80)

This new fusarium wilt-immune main crop red-fruited tomato is similar in all respects to Rutgers



### TOMATO BREEDERS ORGANIZE

Tomato breeders holding their first national organization meeting at the University of Illinois elected these men to the steering committee. Left to right, seated: Dr. Mark Tomes, Purdue University; M. B. Root, Cornell Seed Co.; Dalton R. Ozanne, Ferry-Morse Seed Co. Standing: Vic Lambeth, University of Missouri; W. P. Tyler, Curtice Bros.; and Wayne Robbins, Campbell Soup Co.



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PLANT BREEDER HONORED

Prof. Lyman G. Schermerhorn, Rutgers University vegetable breeder due to retire this year, is honored with a citation and watch from the Tri-State Packers' Association. He is best known for his "Rutgers" tomato. Speaking for the packers was Leo Nocenti (left) in charge of field work for the F. J. Ritter Co., Bridgeton, N.J. The ceremony took place during a recent conference of packers' fieldmen at Rutgers.

except in immunity. It was developed by the Purdue University Agricultural Experiment Station.

#### Red Jacket and Longred (80)

These sister varieties were originated by the New York Agricultural Experiment Station. Red Jacket fruit is slightly oblong and flattened, with solid good red inside color. Vines have vigorous large leaves, dense foliage, and are free bloomers. Longred fruits are globular smooth, have a small scar, and thick walls of good red color. Plants have medium size, with many branches, and small to medium leaves. Both Red Jacket and Longred are used extensively for processing.

#### Fireball and Moreton Hybrid (70)

Introduced by Joseph Harris Company, Inc.,

for extra early fresh market, they have good-sized fruit, smooth and meaty.

#### Tri-State Area (Md., Del., N.J., New York and Pennsylvania)

Rutgers, Longred, Red Jacket, Fireball, Morton Hybrid, and Valiant have already been described.

#### Marglobe (75)

Introduced by USDA, it is largely used for fresh market. Plants are vigorous, erect, bushy, and partially resistant to fusarium wilt. Fruit is red, medium large, deep globe, smooth, and solid with thick walls.

#### Queens (75)

An excellent variety in the East for early market and some processing, vines are vigorous, somewhat open in habit with intermediate foliage. Fruit is good red, medium large, deep globe shape, with small blossom scar and firm fruits with thick walls.

#### Stokesdale (70)

Introduced by Francis C. Stokes, fruit is good red, globular, thick-walled, and of medium size. Medium-sized plants are semi-erect, and spreading foliage gives fair fruit coverage.

#### Florida-Southeast

Grothen's Globe and Rutgers have already been described.

#### Homestead (76)

Developed at the Southeastern Regional Laboratory of the USDA, it was bred for canning, but is now outstanding for fresh market. Fruit is comparable to Rutgers, of good dark red color, medium large, subglobose to oblate in shape, firm and free of internal browning and puffiness. Vine is semi-determinate with coarse foliage, and is sturdy and productive, with near immunity to wilt.

#### Manalucie (85)

A new variety developed by the Gulf Coast Experiment Station at Bradenton, Fla., fruit is deep red, medium large and prolate, with smooth

shoulder, small stem and blossom scars. It is relatively free from cracks and has thick walls. It must be harvested in the green crop or pink stage for best flavor and shipping quality. Vines are partially erect, with large strong branches of indeterminate type, and large green leaves furnish adequate fruit shade. A very aggressive feeder and heavy producer, yields exceed Grothen's Globe. Inherently resistant to wilt, grey leaf spot, early blight, sore shank, color rot and leaf mold, it is mildly resistant to black spot, nematode, and blossom end rot.

#### Jefferson (80)

An Associated Seed Growers, Inc., introduction, fruit is good red in color, globe-shaped, a little smaller than Rutgers in size, thick-walled with small core relatively free from cracking. Plants are medium to heavy, vigorous, prolific, and resistant to fusarium wilt.

#### Greenhouse Varieties

Improved selections of Globe, Michigan, Ohio Hybrid, Spartan Hybrid, Stokesdale, Tippecanoe are popular in the Midwest. In the Northeast Waltham Forcing, Improved Bay State, and new Waltham Hybrid are widely used. For detailed descriptions, growers should write their agricultural experiment stations for varieties which are best under their local conditions. THE END



Gleekers

OHIO WR 3 GLOBE is popular with greenhouse growers as a wilt-resistant strain of Globe.

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#### FOR USE ON FLAT LAND: Fig. 1-2

Shows arrangement of cones for crops where it is desirable to remove some of the dirt away from the plants such as celery. This method causes the cones to rake the soil away from the plants. This frees and brings up the heart for better growth and quicker development.

Ordinary cultivation leaves the weeds in the plant rows.

Don't let weeds take your crop.

This mechanical cultivator gets right into the row around the plants without injury to the plant or its root system.

Saves valuable time and money. Pays for itself within 20 hours of operation.

MARCH, 1957

VEGETABLE GROWER

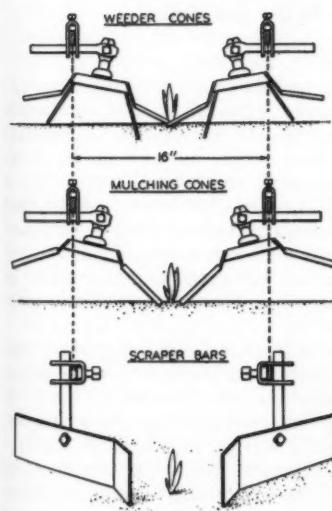


Fig. 2



Fig. 1

Growers who are using this weeder claim it to be the best ever, for cutting weeding cost.

One unit will do the work equal to hand labor of eight to ten men, practically eliminating all hoeing or hand weeding. Can be used in celery, cabbage, sweet corn, beans, strawberries, set onions, asparagus, mint, peanuts, gladiolus, cotton, sweet potatoes, tobacco, nursery stock and other planted crops.

Works excellently on bedded crops and can also be set up for multiple row work. Cultivates around each plant at speeds of 4 to 6 miles per hour without injury to the crop.

Retail price \$160.00 per row F.O.B. Caledonia, Mich.

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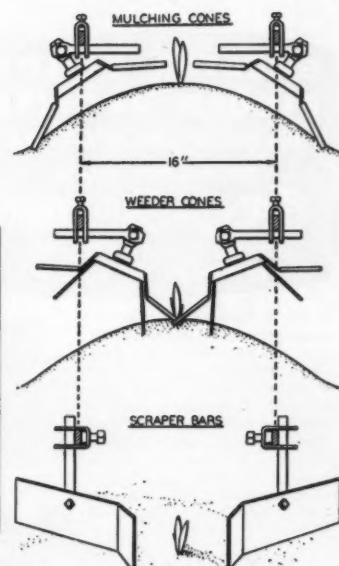


Fig. 3

#### FOR BEDDING: Fig. 3

The positions of the cones are reversed. The weeder cones are set in front to cultivate and weed the top of the bed around the plants. The mulching cones are used behind and are switched from left to right, mounted on the outside of the mounting bar. The cones are tilted at such an angle to conform with the sides of the bed.

The forward movement of the tractor causes the mulching cones to rake the sides of the bed, throwing a layer of soil back to the row around the plant. This method weeds both the sides and the top of the bed and at the same time maintains its shape.

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Growers of processing tomatoes are looking to bargaining associations to stabilize their industry.

## Tomato Bargaining Co-ops . . . Good or Bad?

**Bargaining co-ops can be a useful market-  
ing tool—if you study the facts carefully**

By WENDELL M. McMILLAN  
*Farmer Co-operative Service, USDA*

**I**N recent years growers of processing tomatoes have become increasingly interested in organizing bargaining co-operatives.

Many growers find that, as individuals, they have little bargaining power in dealing with processors for the sale of their crop. By organizing bargaining associations they feel that they can deal more effectively with processors, not only for price, but also for other contract terms such as grading practices, unloading schedules, and grower payment practices.

### Benefit Entire Industry

Besides helping growers, a bargaining co-operative can bring benefits to the entire industry. Processors can be more assured of a continuing supply of raw product, and with volume concentrated in a grower association, processors can realize savings in field work and in contract sign-up. Quality improvement, disease and pest control, and improvement in cultural practices—all of which benefit the whole industry—can often best be done through the joint efforts of the processors and an organized growers' association.

As members of a bargaining co-operative, growers also become more aware of market trends and demands for their crops, as well as of processing and marketing costs. As a result, growers better understand that they need to adjust their production in line with consumer demand, and that the growers' price cannot be higher than market conditions warrant.

To date, processing vegetable growers have established at least a dozen bargaining co-operatives. Five of these associations (in New Jersey, New York, Ohio, Utah, and California) represent growers of processing tomatoes. Other vegetable associations bargain for members' peas, sweet corn, cabbage, and beets.

Except for the pioneer association, organized in Utah in the early 1920's, the main interest in vegetable bargaining co-operatives began to develop about the time of World War II and has continued at an increasing rate ever since. In addition to the 11 co-operatives organized between 1941 and 1956, at least four other grower groups are now considering the formation of similar associations. At least 9000 producers are now members of the 12 vegetable bargaining co-operatives.

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#### ACTUAL YIELD INCREASES WITH GRO-GREEN

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Tomatoes . . . . . 2-5 tons Peas . . . . . 1-2½ tons  
Above are records of actual increases in yields per acre on hundreds of farms all over the country. Comparable results reported on other vegetables.

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bilibize their industry.

PS . . .

The organizational setup of the tomato and other vegetable bargaining co-operatives is similar to that of many other co-operatives. Incorporating under the Co-operative Act of their states, usually on a nonstock basis, the members set up bylaws and elect a board of directors. The board members, each usually representing a district of the area served by the association, establish policies and hire a manager to conduct the daily affairs of the association. In organizing and obtaining marketing information, many associations have obtained assistance from their state Farm Bureau.

In most co-operatives each member is required to sign a membership contract or agreement with the association, in which the member appoints the association as the sole agent for the marketing or contracting for sale of all the canning crops grown by him or on his land. Usually there is a provision allowing members to withdraw from the association during a certain period each year.

#### Services Provided

Besides negotiating with processors, the associations also provide members with other services such as supervision of grading, unloading, stacking, and weighing; checking on the financial responsibility of processors; and supplying members with information on both cultural practices and marketing conditions. The manager provides or assists in providing these services. In addition he continually solicits membership, maintains contacts with processors, and collects economic and marketing information needed by the association for its negotiations with processors.

Plans for the annual contract negotiations usually begin well in advance of planting time. Meetings are held at which members and directors discuss the latest economic information available and growers express their attitudes regarding price and other terms to be negotiated. Following these meetings the co-operative's bargaining committees meet with the individual processing plants for negotiations.

These bargaining committees—usually one committee for each major processor—are composed of the manager and a director plus several growers in the area served by the processor. Through a series of meetings with the individual processors, the bargaining committees attempt to negotiate for prices and terms that are acceptable to both the growers and the processors.

THE END.

Planning to build a plastic greenhouse? Send 25 cents to AMERICAN VEGETABLE GROWER, Wilmoughby, Ohio, for sets of plans developed by Kentucky and New York experiment stations.

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MARCH, 1957

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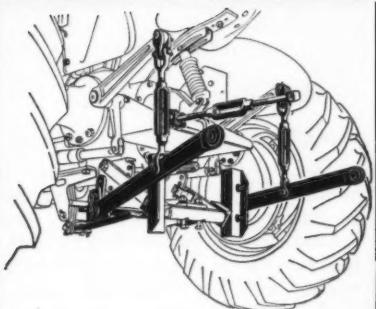
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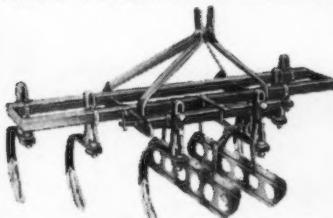
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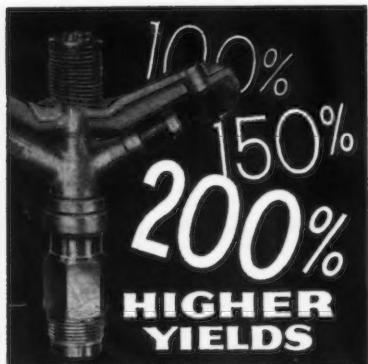
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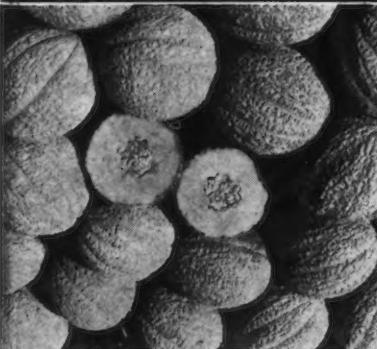
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## Join A Tomato Club and INCREASE YOUR YIELD

First of all, though, you have to qualify to join these exclusive clubs which produce for the canner

RECORDS are made to be broken and tomato club records in 1956 were no exception. In Ohio a Wood County farmer and a Darke County father and son were winners in the Ohio Top Ten Tomato Club. Ivan Freeman, of Deshler, produced 30.86 tons of tomatoes per acre on 18.51 acres and W. R. and Scott Ferguson, of Union City, Ind., grew 30.58 tons per acre on 8.17 acres. It was the first time in the history of the club, organized in 1947, that any winner has produced over 30 tons to the acre, reports E. C. Wittmeyer, Ohio extension horticulturist.

In Indiana, Gary and Terry Worl, high school brothers, had the top record in the Master Craftsman Club with an average yield of 30.53 tons per acre on a 7.94-acre field. They were assisted by their father, Weldon Worl, an old tomato champion. The Worl brothers sold their tomatoes to the cannery on a U. S. grade basis and the records show an average grade for the season of 65% U. S. No. 1's, 33% No. 2's, and less than 2% culs.

F. C. Gaylord, of Purdue's department of horticulture, gives the interesting history of these tomato production clubs and tells how the Worl brothers attained their high production.

### Club History

Tomato production clubs started in Indiana in 1926 and have been an incentive to increased yields throughout the processing regions of Indiana, Ohio, New York, Pennsylvania, and the Tri-State area of

Maryland, Delaware, and New Jersey. Club winners year after year have demonstrated improved cultural and marketing practices. Beginning with the 10 Ton Plus Club formed in Indiana in 1925, other clubs such as the Indiana U. S. WON Club, the Indiana Double Tonnage Club, and, in 1954, the Master Craftsman Club have followed.

To become a member in Indiana's exclusive Master Craftsman Club a grower must produce 25 tons or more of merchantable tomatoes on a minimum of 4 acres. If the grower has more acreage, the 25-ton yield must be secured on the entire acreage. In the 1956 season 12 Indiana growers reached the coveted goal.

### How the Worls Did It

The field used by the champion Worl brothers had been in corn in 1954 and 1955. In the winter of 1955 the cornstalks were covered with 2 tons per acre of cow manure. This tomato field was in one of Indiana's top farming areas where corn yields average from 100 to 125 bushels per acre. A test of the soil by the cannery's fieldman showed a pH of 6.0 with a supply of 406 pounds per acre of available phosphorus and 320 pounds of potash.

About the first part of April 740 pounds of 10-10-10 fertilizer per acre was applied and disked in with the cornstalks and manure. After disk-ing, the field was plowed about 8 to 10 inches deep. A little later it was disked and harrowed and then leveled with a heavy drag. The first of May another 150 pounds per acre



Master Craftsman and U. S. WON club members unload hundreds of tons of quality tomatoes yearly at this Indiana cannery plant.

AMERICAN VEGETABLE GROWER

# YIELD

join  
nner

and New Jersey year after year improved cultivation practices. Beginning on Plus Club in 1925, other Indiana U. S. WON Double Tonnage Club, the Master followed. Grower in Indiana's Craftsman Club a year 25 tons or more tomatoes on 12 acres. If the grower had a 25-ton yield on the entire acreage on 12 Indiana meted goal.

It

the champion seen in corn in winter of 1955 covered with 2 manure. This one of Indiana's were corn yields 25 bushels per acre by the canning a pH of 6.0 pounds per acre corpus and 320

at of April 740 fertilizer per acre used in with the acre. After disked about 8 to 10 days later it was and then levelling. The first of pounds per acre



VEGETABLE GROWER

of 0-20-0 fertilizer was drilled in. Just before the setting date, May 12, the field was twice gone over with a disk and harrow.

The setting of the field, with Urbana plants, was finished on May 14. A transplanter was used and the rows were 42 inches apart and 34 inches in the row. A starter solution, 10-52-17, with 3 pounds in every 50 gallons of water was used. A hand setter followed the transplanter and filled in the missing plants.

## Weatherman Co-operated

Perfect weather, with a warm rain, followed the setting, and since the field showed a 90% stand, no re-setting was done. Cultivation consisted of two regular ones with no hoeing. By the last of June the vines began to cover the rows and by July the vines were heavily set with fruit. Spraying was started and five sprays at 10-day intervals were applied. Sprays with both fungicides and insecticides were applied by a custom sprayer using a boom sprayer.

Tomatoes began to ripen along the first part of July and the first picking was made by Arkansas pickers on August 7. Five pickings were

Working drawings for an attractive, easy-to-build roadside stand are available for \$1.50 from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

made; the first with an average of 1 ton per acre; second, 8½ tons; third, 7 tons; fourth, 12 tons; and fifth, on September 23 made 1½ tons per acre.

The above record shows that Gary and Terry did things about right, but they were helped by almost perfect weather all season.

## Other Grower Records

Along with the Worts, 10 other farmers on a total of 177.3 acres produced 4678.22 tons or an average of 26.39 tons per acre. These were also the top growers in the U.S. WON Club, Indiana's famous production club.

All of the 12 Master Craftsmen growers followed roughly the same formula, mainly top, well drained corn belt soil, with a complete high analysis fertilizer application of 1000 pounds per acre or more, plus good stands of direct-seeded or first-quality plants. Recognized top-yielding varieties were used and a thorough job of spraying for insects and diseases was done. When the crop came on, a good job of picking resulted in high yields, high quality. THE END.

Growers interested in the latest technical information on canning tomato production and the "how" of top producers may secure a copy of "The Canners' Wall" by dropping a card to the Horticulture Department, Purdue University, Lafayette, Ind.

MARCH, 1957



## MERLIN W. GLECKLER—The Tomato Man

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Adapted tomato varieties for every spot on this earth. THREE EXCEPTIONS—SOUTH POLE, NORTH POLE AND THE SAHARA DESERT. 90 varieties in all, the most unusual and finest collection of tomato strains in the world. Continuous improvement on present strains. World-wide search for varieties having higher disease resistance.

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**FLORIDA OR  
GREENHOUSE  
TESTED!**  
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**GROW TOP QUALITY  
MINNESOTA  
Certified SEED POTATOES  
FOR HIGHEST YIELDS!**

Grown under rigid requirements and in-  
spected by well trained, qualified Inspectors  
of the State Department of Agriculture.

**MINNESOTA CERTIFIED SEED POTATOES  
ARE SOLD ONLY BY THE GROWERS.**  
Select your variety—we supply  
the grower. List on request.

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**Look for this Of-  
ficial Blue Tag of  
Certification on  
every bag.**

**OFFICIAL TAG  
Minnesota Certified Seed Potatoes**  
The Minnesota Department  
of Agriculture certifies  
that the above named  
grower has produced  
potatoes of the quality  
and quantity specified  
on the reverse side  
of this tag.

**STATE OF MINNESOTA DEPT. OF AGRICULTURE**  
Seed Potato Certification, U. of M. St. Paul Campus, Dept. P, St. Paul, Minn.

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**The New Flavor in Melons With True Hybrid Vigor & Yield**

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**Finest Scientifically Tested Hybrids**

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GOSHEN, INDIANA**



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**(USING L-P  
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Rugged Construction  
No Vent Required**

**100% Safety Pilot  
Directional Heat  
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Manual or Auto-  
matic Control**

**Is Being Used with  
Outstanding Results**

**WRITE**

**BLUE GRASS BUTANE CO., Inc.  
2417 Nicholasville Pike  
Lexington, Ky.**



## TOMATO LAND

*(Continued from page 16)*

The balance of the acreage is, of course, transplanted. Most growers formerly grew their own plants in cold frames, but in recent years millions of plants are grown and shipped in from plant farms in the Coachella Valley. These are usually planted around the middle of April and are spaced 20 to 24 inches apart in 5- or 6-foot rows.

### Fertilization

Fertilization plays a major role in the production of the high yields in this state. Extensive co-operative tests by the University of California in growers' fields indicate that in general about 120 pounds of actual nitrogen (equivalent to 360 pounds ammonium nitrate) per acre is all that is necessary to produce a good 30-ton yield. Phosphate applications at the rate of 60 pounds  $P_2O_5$  per acre have been found beneficial on some soils. Potassium applications have never been found to benefit yields of tomatoes except occasionally on the peat soils of the Delta.

Contrary to eastern research, soil tests have never been successful as an indicator of the fertilizer needs of tomatoes in this area. In like manner, plant tissue tests are of little value, because by the time these tests detect a deficiency it is usually too late to correct it.

Mostly furrow irrigation is used on tomatoes. In the peat lands of the Delta, however, subirrigation is practiced by the control of water levels in the subsoil by pumps which pump water in or out of drainage canals as needed. In the mineral soils of the area, the deep root system of the tomato makes frequent irrigation unnecessary. Instead, infrequent heavy irrigation encourages the development of large root systems. Shortly before harvest, a final thorough irrigation is applied. The water remaining in the soil is usually sufficient to finish the crop if the roots extend to 6 feet or more.

### Harvesting

Tomato harvest begins about mid-August. The "transient" farm laborer has all but been replaced by organized contract crews of Mexican nationals who are brought in by international agreement every year.

After picking the fruit in 50-pound boxes, the picker stacks them at the roadways which are left every 200 feet through the field. Twenty-ton trailer trucks pick the boxes up in the field for transport to the canning plant.

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En route, every load is inspected by the State Department of Agriculture for grade specification at inspection stations throughout the producing areas. Rejected loads must be either dumped or regraded. Tomatoes are often trucked 150 miles to the cannery and the highways of the area are glutted at this time with loads of tomatoes.

#### Industry Problems

Such a producing area is not without its problems. The Pearson and closely allied varieties are constantly being improved through selection and incorporation of disease resistance. The San Marzano, a pear-type tomato, is desired for paste and puree production. However, this variety yields less than Pearson and is more expensive to pick. Another variety of the same type, Redtop, has performed well in the last two seasons and may replace the former. One field of Redtop this year produced a measured 47 tons per acre on a 15-acre block.

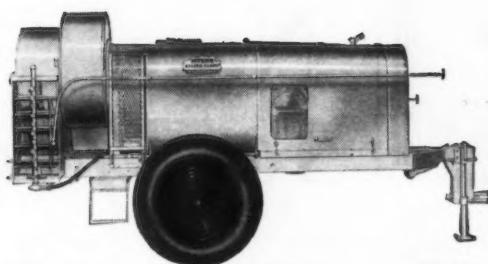
Soil compaction has been getting progressively worse and some feel it is the primary reason for low yields. Some growers produce only 12 to 15 tons per acre on land that is capable of producing over 30. Compaction causes poor water penetration and inhibits root development below 12 inches.

Proper soil management can, of course, prevent the formation of compacted layers, but high land rent and heavy property taxes make for continual cash cropping with few soil-building crops. The rush of spring planting with heavy tractors on insufficiently dried soil also contributes to the problem.

The inability of the canning plants to keep up with the speed of harvest of the crop frequently leads to grower quotas. By this practice the cannery limit the tonnage the growers can harvest daily. This complicates labor problems, as well as increases losses from overripeness.

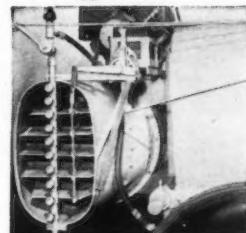
No satisfactory answer to this problem has been found. Increased plant capacity is one answer, but the lack of labor to man the plants slows this expansion. Plant growth regulators to hasten fruit set always leads to lower yields through reduced vine growth. Consequently the growers have not accepted this means of spreading the harvest.

In the meantime, a growing American population with an increased demand for food is increasing the consumption of tomato products every year. The unfailing production of this area with its favorable price is encouraging food processors to increase their plant capacity to pack the California tomato crop. THE END.



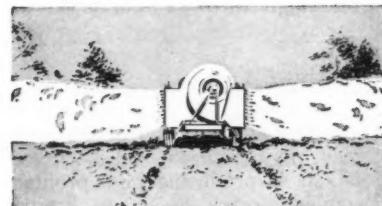
**Concentrate Sprayer:** two-way discharge, 22,000 cubic feet of air per minute from each side, 60 MPH. High pressure, abrasive- and corrosive-resistant, 20 GPM Myers piston pump. Easy-to-reach, positive controls.

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**Two-way spray pattern** produced by Myers 45,000 CFM field-crop, air-blast sprayers covers 80-foot spray swath. Turbulent roll of uniform air pattern assures complete coverage quickly and efficiently.

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The combination of Myers high-pressure spray pump and long-lasting ceramic discs, provides ideal droplet size for concentrate spraying. The high-volume, high-velocity air stream saturated with man-made fog coming from spray nozzles, displaces the air around plants; covers leaves, fruit and twigs with uniform droplets of spray material.

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# New for You

### Quick and Easy Weeding



Michigan growers have cut weeding costs with the field-tested Buddingh Inrow weeder. The machine does a clean, quick job and works excellently on bedded crops. It can be easily set up for multiple row work, and I have seen it used on celery, cabbage, sweet corn, beans, strawberries, onions, asparagus. Write the Buddingh Inrow Weeder Co., Caledonia, Mich.

### Hybrid Tomato

Introduced by a pioneer in the breeding and growing of fine tomato seed, the new F<sub>2</sub> hybrid, Stokescross No. 6, is producing high profits. It combines crack resistance, Fusarium resistance, and no yellow top with unusual flavor and heavy yields. Seed is available now at \$1.50 an ounce or \$8.40 a pound, and southern-grown plants will be available May 1 at \$6.50 a thousand F.O.B. Georgia shipping point. Write the Francis C. Stokes Company, Vincentown, N.J., for full details.

### How Much Has It Rained?

Knowing how much rain has fallen over a 24-hour period can save you a lot of money in unnecessary irrigation. It can also help you at harvest. Measuring rainfall is a simple job with a new gauge now available to our readers. The gauge registers rainfall accurately from .01 inch to 6 inches and sells for only \$3.95. Why not write Mr. Myers, president of the Tru-Chek Rain Gauge Co., 100 North Broadway, Albert Lea, Minn.



### CHRIS-CROSS WATERMELON

New Wilt Resistant Dixie Queen type. Does well on old watermelon land in all sections. Melons free from Anthracnose. Thin, tough rind hauls well long distances. Always good flavor, black seeds, showy appearance. In big demand by melon buyers. Resists sunburn, very few culs, or hollow hearts. A money maker and a big yielder. Grown in isolated fields from Originator's Stock. Send for FREE CATALOG of new, improved varieties.

**Lb. \$3.25: 5 lbs. \$16.00;  
10 lbs. \$31.50.**

**Otis S. Twilley Seed Co.**  
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### EYE GLASSES by MAIL As low as \$1.50

WRITE for FREE  
CATALOG with 14  
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Thousands of  
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SPECTACLES FOR FAR AND NEAR

**ADVANCE SPECTACLE COMPANY, Inc.**  
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Protect your property now  
this new easy way.

Here's a new way to keep out foraging deer—MAGIC CIRCLE Deer Repellent. It's an easy-to-use chemical, that, sprayed on the ground forms a band of special deer-repelling odor around yards, orchards, gardens and fields. Deer just won't cross it. Ingredients have been proven by tests at Pennsylvania's leading agricultural University.

- keeps out deer, and in most cases, beaver, woodchuck, raccoon and skunk
- use with most ordinary sprays or by itself
- won't harm plants
- won't harm spray equipment
- low in cost
- one and five gallon containers

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LABORATORIES**  
State College, Pa.

AMERICAN VEGETABLE GROWER

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Dixie Queen  
old watermelon  
Melons free  
Thin, tough  
black seeds,  
in big demand  
sustains sunburn,  
hollow hearts,  
a big yielder.  
fields from  
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5 lbs. \$16.00;  
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As low as \$1.65

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Chicago 5, Illinois

spray stops  
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to keep out  
GIG CIRCLE  
is an easy-to-  
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around yards,  
fields. Deer

Ingredients  
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TABLE GROWER

## TRELLIS TOMATOES

(Continued from page 11)

the row. Some growers with inadequate plant-producing facilities prefer to grow two stems per plant and space the plants 22 to 24 inches in the row. It requires 8000 to 10,000 plants per acre.

Most growers prefer to set the plants before putting up the trellis. This allows for tractor cultivation between the 2-foot rows. Sharpened posts or pipe are driven every 25 feet, and a heavy post set at the end. A No. 10 or 12 wire is stretched along the top of the posts. A 4-ply jute or binder twine is tied loosely around the plant and to the wire. As the plant grows, it is wound around the string for support. Proper pruning is essential for good trellis tomato production. Side shoots should be removed by the time they are 4 to 6 inches long.

A good spray program for the control of insects and disease must be carefully followed.

Inasmuch as the cost of production of trellis tomatoes is so high, it is essential to have irrigation. Proper watering will help greatly to produce proper size and reduce the fruit cracking.

THE END.

## FLOWERING HABITS

(Continued from page 22)

listed in one catalog as a determinate type, and in another as an indeterminate type. In both cases the seed companies are outstanding in the field.

Since we were using this variety, we decided to investigate its type and that of several others in greenhouse tests in the spring of 1955.

Of 14 varieties observed, five were determinate and nine were indeterminate. The determinate varieties were Fireball, Gem, Moscow, Pritchard, and Victor. All had one internode except Pritchard, which had one or two.

Indeterminate varieties included Chesapeake, Earliana, Longred, Loran Blood, John Baer, Marglobe, Queens, Stokesdale, and Valiant. All had three internodes except Chesapeake, which had three or four.

All the varieties were listed correctly in the catalogs except Valiant, which was definitely indeterminate. The type of inflorescence is an inherited factor and generally conforms to variety type. However, in all cases that environmental conditions as well as production practices may influence the type somewhat.

THE END.

# Shoot for Heavy Harvests!



**There's more profit for you** in every bag of ARCADIAN UREA 45, the concentrated 45% nitrogen fertilizer. You need this quick, effective nitrogen grow-power to make your crops shoot up fast, with strong, vigorous, green growth that builds big yields. UREA 45 is all high-quality Urea nitrogen, fast-dissolving, leach-resistant and quick-acting even in cold soils. You get 36 pounds of actual nitrogen in every 80-pound bag, to feed your crops faster and easier. ARCADIAN UREA 45 spreads easily through any equipment, and dissolves readily in irrigation water. It's a real money-maker and labor-saver, any way you use it. See your dealer now—get ARCADIAN UREA 45 now to build bigger yields on every field!

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# Grow with Arcadian®

ARCADIAN UREA 45

the free-flowing, concentrated nitrogen

### Price Correction

In the Burpee Hybrid Cantaloupe advertisement on page 43 in our February issue, the wrong prices were printed. Growers' wholesale prices should have been:  $\frac{1}{4}$  oz. \$2.25; 1 oz. \$8.50;  $\frac{1}{4}$  lb. \$30.00; 1 lb. \$95.00.

### MORE AND BETTER POTATOES

Activo is Nature's own way of energizing soil for best crop yields with billions of friendly organisms, hormones, vitamins, minerals. BIOTICS. (Users report "Better than fertilizer!") Just apply to seed. More bigger, better potatoes or your money back. Trial pkg. for 9-18 bu. \$2.95 p.p.d. Dealers or THE ACTIVO COMPANY, Bridgeton 43, Ind.

### VEGETABLE PLANTS

Cabbage, Onions, Tomatoes, Pepper, Collards, Broccoli, Brussels Sprouts, Cauliflower, Eggplants, and Sweet Potatoes.

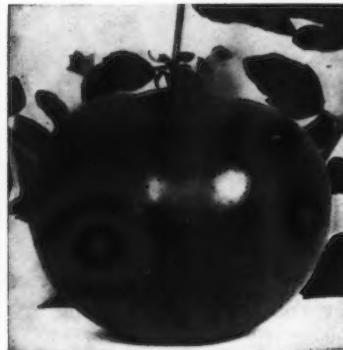
Best strains of leading varieties. Shipments catering to market gardeners' demands. Free price list.

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JACKSONVILLE, TEXAS

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Seeds of Proven Merit



### SIOUX

Very early, smooth medium globe  
heavy set, uniform ripening

#### The Tops in Tomatoes

strains that reflect the  
most careful breeding

- Jefferson • Stokescross • Wisc. 55
- Homestead 24 • Queens • Brookston
- Rutgers • Marglobe • Valiant
- and other leading varieties

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MAKE \$75 UP WEEKLY. SPARE TIME. Sell liquid fertilizer to farmers. Exclusive franchise available. Liberal profits. Free local advertising. No investment, no experience required. Write "NA-CHURS" PLANT FOOD CO., 718 Monroe St., Marion, Ohio.

FARMERS, AGENTS, DEALERS—SELL Nutriene Hi-Mag liquid fertilizer. Liberal profits, full or part time. District Manager position available. Send for sales kit. Box 246, NUTRIENE FERTILIZERS, St. Joseph, Michigan.

### BOOKS

THE HOW-TO BOOK ON STRAWBERRIES. 112 illustrated pages of down to earth strawberry know-how with complete charts on diseases, pests and their control. \$1.50. AMERICAN VEGETABLE GROWER, Box 107, Willoughby, Ohio.

FOR ONLY 25¢, WE WILL SEND COPY OF 1954 issue. Former price \$2.00. Supply limited; maximum three to a reader. AMERICAN TOMATO YEARBOOK, Box 142-A, Westfield, New Jersey.

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\$100.00 WEEKLY RAISING EARTHWORMS! Free plan reveals how! OAKHAVEN-25, Cedar Hill, Texas.

### FOR SALE—EQUIPMENT & SUPPLIES

FOR SALE—14' ALUMINUM TRUCK BODY. \$400.00 Carrot harvester, \$1200.00 DAVID SLINGER, Randolph, Wisconsin.

TRI-PAK TOMATO WASHER, WAXER AND grader used 150 hours. EDWARD SHEPARD, Suffern, New York.

WEIGHPACKER, FAST PACKING FOR 5, 10 and 15 lb. bags potatoes or other produce. Cost \$2600.00 new. Also D & B bag closer and sewer. Cost \$1550.00 new. Made by Aeroglide Corporation, Raleigh, N. Carolina. Used only two seasons. Guaranteed to be good condition and running order. Unusual bargains. WENDELL BAKER, Urbana, Ohio.

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WANTED—WORKING MANAGER OR EXPERIENCED foreman for vegetable farm. Year round

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FROM OPEN SANDLOAM FIELDS 8" TALL WITH ROOTS AND FIRM LARGE STEMS PLENTY SUFFICIENT, CERTIFIED AND GUARANTEED, REASONABLY PRICED. Garden States, Rutgers, Stokes-crossed and other tomatoes. Yolo Wonder and Hungarian Wax pepper. Also Ferry round dutch, Golden Acre, Globe Marion Market cabbage plants.

Come to see us, bring your truck, we desire your acquaintance. Also Express lots.

**CRESCENT FARMS, Moultrie, Ga.**

### CANTALOUPE & WATERMELON SEED

for those that need the best crown set from known origin, from where Nature makes good quality better.

Imperial PMR 45 & Jumbo Hales Best Cantaloupe.

Charleston Gray, Congo, Blackdiamond and Dixie Queen watermelon, Colorado Certified at introductory prices. Write expressing your needs, send no money, let us trust you.

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position better than average salary, modern home, school 2 blocks, town 2 miles. SURGEON BROS. RD. No. 2, Frechold, N.J.

### IRRIGATION SYSTEMS

500 GALLONS PER MINUTE IRRIGATING pump powered by 125 HP Chrysler Industrial Motor \$900.00. All condition. Trailer mounted. R. A. SIVON, Perry, Ohio.

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WANTED: BANTAM BUFF ROOSTER, SIZE of western quail. No feathers on feet. FEDICK, EAST PITTSBURGH, PA.

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QUILTING? REMNANTS? POUND, 15¢ UP. Lists, Samples. RAINBOW, Estill Springs, Tenn. "8 MISTAKES PARENTS MAKE" EVERY parent should have this new book about child training. It is free; no obligation. Simply address PARENTS ASSOCIATION, Dept. 1363, Pleasant Hill, Ohio.

### PLANTS AND SEEDS

HORSERADISH SPROUTS, HEALTHY sturdy, virus free strawberry plants. Write for quotations. CLARK SEED CO., Cheswold, Delaware.

VINE SEEDS, HYBRID SWEET CORN, seeds fully treated for your protection. Write for quotations. CLARK SEED COMPANY, Cheswold, Delaware.

STRAWBERRY PLANTS—ARKANSAS CERTIFIED, virus free, disease free. Green Tag Blacmore plants. \$5.00 per 1,000. Twenty other leading varieties \$6.00 per 1,000. UNVERRICHT & SCOTT, Augusta, Arkansas.

RHUBARB PLANTS FOR SALE—WRITE LENORA WELCHLEN, LeRoy, Illinois.

PEACH TREES, LEADING VARIETIES. New land grown, fine fibrous root systems. True to name and priced right. SECOR'S NURSERY, RT. 20, Perry, Ohio.

RASPBERRY AND STRAWBERRY PLANTS. Heavy fibrous roots, none better. Let us prove that quality pays. Red, Black, Purple Raspberries. NEW DURHAM EVERBEARING RASPBERRY, SECOR'S NURSERY, Rt. 20, Perry, Ohio.

FOUNDATION SEBAGO AND CHEROKEE also Certified Sebago Seed Potatoes. NORTH-MICH SEED FARM, Elmira, Mich.

WRITE FOR FREE 1957 PRICE LIST CABBAGE, Tomato, Potato, Pepper and other vegetable plants. Use plants from our premium certified (hot water treated) seed. DIXIE PLANT CO., Franklin, Virginia.

TENNESSEE REGISTERED (VIRUS-FREE) strawberry plants: Blakemore, Dunlap, Klonoore, Klondyke, Missionary, Florida. Ninety \$6.00 per thousand. Albion, Aroma, Bellmar, Tennessee Beauty, Catskill, Robinson, Premier \$8.00. Dixieland, Sparkle \$10.00. Pocahontas \$12.00. SMITH BERRY GARDENS, Ooltewah, Tennessee.

### WANTED—EQUIPMENT & SUPPLIES

SPRAYER FOR 15 ACRE ORCHARD. KLEMENS, Huntsburg, Ohio.

25,000

### DWARF APPLE TREES

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Hardy, northern grown 1-year old trees. Grafted on Malling Stocks No. II, IV, VII and IX. Guaranteed free from insect pests or plant disease. Backed by more than 100 years of Leuthardt family experience in Dwarf Fruit Trees. Send for prices. State your needs, soil conditions and varieties desired, to eliminate any possible risk in choosing proper understock.

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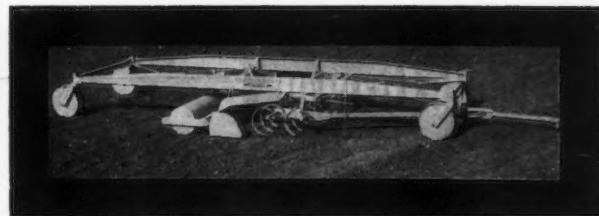
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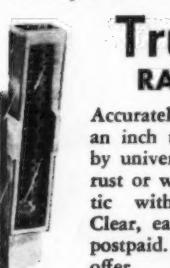
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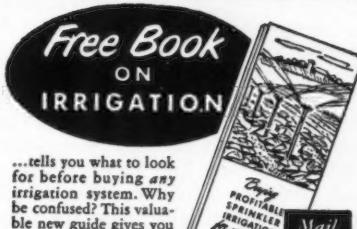
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CROPS \_\_\_\_\_ ACRES \_\_\_\_\_

Has the Tomato Made Good?

THE tomato was brought into Europe from the Peruvian Andes with the discovery of America. The northern Europeans were suspicious of it and thought that it was poisonous because of its botanical relationship to nightshade. The French tried to popularize the vegetable by naming it the love apple, in Germany yellow sorts were called the gold apple, and in many parts of northern Europe they were disparagingly known as the wolf peach.

The tomato was not well received in northern Europe until the nineteenth century. An English gardener in 1596 wrote, "They yield very little nourishment to the bodie, and the same naught and corrupt." In Italy and Sicily, however, they were received more favorably and were soon grown extensively and widely used by 1800.

When the early north Europeans came to this country, if they brought tomato seed at all, it was only to plant as an ornamental novelty in their gardens. An agricultural experimenter in Connecticut wrote, "We raised our first tomatoes in 1832 as a curiosity, made no use of them, although we had heard that the French ate them."

At that time the tomato was a flattened, ribbed, watery, acid fruit about the size of a plum and it took a lot of selling by Italian immigrants to bring it into any use in the diet of the skeptical, thrifty Yankees of pre-Civil War days.

How has it fared since? In 1956 the farm value of the commercial tomato crop for fresh market and processing was over \$275 million. Returns from the peach crop were \$110 million, the orange crop \$316 million, and the apple crop \$205 million.

In 1956 an all-time record production of over four and one-half million tons of top quality were grown for processing, over a million and a half more than the average production during the preceding 10-year period. This 1956 crop will cover a lot of beans, spaghetti, hamburgers, and pizza pies, and still allow an abundance for soup, juice, and tomato pudding. The fresh market has also expanded more rapidly than the population and the favorite sandwich and salad of most Americans must now contain a slice or two of tomato. Probably more money will be spent in

the retail markets for tomatoes than any other crop product.

Plant breeders, seedsmen, plant nutritionists, and many others have helped boost tomato productivity in the past 20 years. As a result the 1956 crop—more than double the tonnage of the 1936 crop—was grown on 60,000 less acres. In 1936 less than 20% of the canning crop was grown in California while in 1956 almost 60% of the crop was produced in that state, 800,000 tons more than in any previous year.

The tomato has been the favorite guinea pig of the plant research worker. With the aid of the love apple, millions have been spent studying problems relating to light, temperature, moisture, and nutrients in relation to growth, flowering, and fruiting of plants. Many fundamental concepts of great practical importance have resulted from these studies and have been applied to solving production problems with many other crops.

All this work has certainly helped the tomato to make good in the United States. The influence of phosphorus, of nitrogen, of low temperature, of high temperature are probably better understood in the tomato than in any other crop.

In 1956 many of the environmental factors that make for high yields of excellent quality were operating in many sections of the country. In 1956 adequate moisture with favorable

warm temperatures early and cool night temperatures during the fruit maturing season resulted in a peak photosynthetic efficiency and the prolific development of fruits of deep red color, thick outer walls and high solids content. Since the majority of the canning acreage is located where these conditions existed, the result

QUOTE-OF-THE-MONTH

*Tomatoes are sold by the ton,  
But I'll be a son-of-a-gun,  
You still pick 'em by hand  
With your face in the sand  
And your rump pointed up at the sun!*

—Albert L. Mason

was a productivity of over 13 tons per acre or 5 tons more than the preceding 10-year average.

Ten million home and market gardeners vie with one another to produce the first ripe tomato in their area. The quality of the tomato has been improved immeasurably since it was dubbed the wolf peach and the public now has a year-around appetite for fresh, vine-ripened flavored tomatoes. Many consumers willingly pay premium prices for greenhouse grown fruit and frequently an acre of greenhouse-grown tomatoes will gross over \$20,000.

Growers near the Mexican border, in Florida, and in other southern areas are striving with some success to supply northern markets with a quality comparable to the winter greenhouse-grown product.

Nutritionists in home economics have also helped the tomato make good in an American economy that discounts calories and places a premium on vitamins.

What of the future? Thirty to 50-ton yields; deeper, uniformly red or orange color; freedom from cracks or blemishes; higher vitamin C content; and, most important, a vine-ripened flavor under adverse conditions are goals for the next century. Maybe, even an acceptable frozen product may be more than wishful thinking.

Coming Next Month

- Vegetable Areas of America—South Carolina
- Modern Frost Protection Methods
- Potato Planting Pointers
- The Fabulous 1000-acre Williams' Asparagus Planting

early and cool during the fruit resulted in a peakancy and the production of deep red walls and high yields. The majority of the fruit is located where it is wanted, the result

—MONT  
the ton,  
in,  
hand  
sand  
up at the sun!  
—Albert L. Mason

of over 13 tons more than the previous year.

and market gardens another to produce tomato in their gardens. The tomato has improved considerably since it was first introduced and the far-around appeal has increased. Farmers willingly pay high prices for greenhouse tomatoes. Recently an acre of greenhouse tomatoes will gross

Mexican border, and other southern states with some success in the markets with a product.

Some economics of the tomato market make the economy that much more pleasant.

? Thirty to 50% uniformly red or yellow from cracks in the vine. Vitamin C content is important, a vine that is in adverse condition in the next century. Acceptable frozen tomatoes are more than wishful

Month  
America—South

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GETABLE GROWER



## IT'S TOO LATE FOR TOP PROFITS



Yellow areas between dark green veins, starting with lower, older leaves, are magnesium-deficiency signs in this tomato plant.



This magnesium-deficient cabbage plant probably will not produce a marketable head, because it's too late. "YLT" has gone too far.



It's too late for profits—for this cauliflower plant, with its curling, blotchy, mottled and discolored leaves.



Magnesium-starved bean leaves show characteristic yellowing, mottling and browning of older, lower leaves.

"YLT" (YELLOW LEAF TROUBLE) means reduced vegetable yields. When you see yellowing between the veins of the older leaves of your vegetable plants, it's a sign of magnesium deficiency. But when such an obvious symptom appears, it's too late for top profits.

Most vegetable soils lack enough magnesium, the element so basic in the growing of healthy, early-maturing vegetables. That's why more and more successful growers apply recommended amounts of premium-type complete vegetable fertilizer containing SPM (Sul-Po-Mag®). Sul-Po-Mag is fast-acting, readily available, and water-soluble. It's the most effective source of available magnesium — and sulphate of potash — for your vegetables. Most fertilizer manufacturers make grades containing "SPM." See your fertilizer dealer.



Premium quality fertilizer certified through use of a balanced combination of the water-soluble magnesium and potash obtained from Sul-Po-Mag® SULPHATE OF POTASH MAGNESIA

Look for this identifying Seal of Approval when you buy. It's your assurance of extra-value fertilizer.

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